

LA-1421 Schematics Document Ver1.0

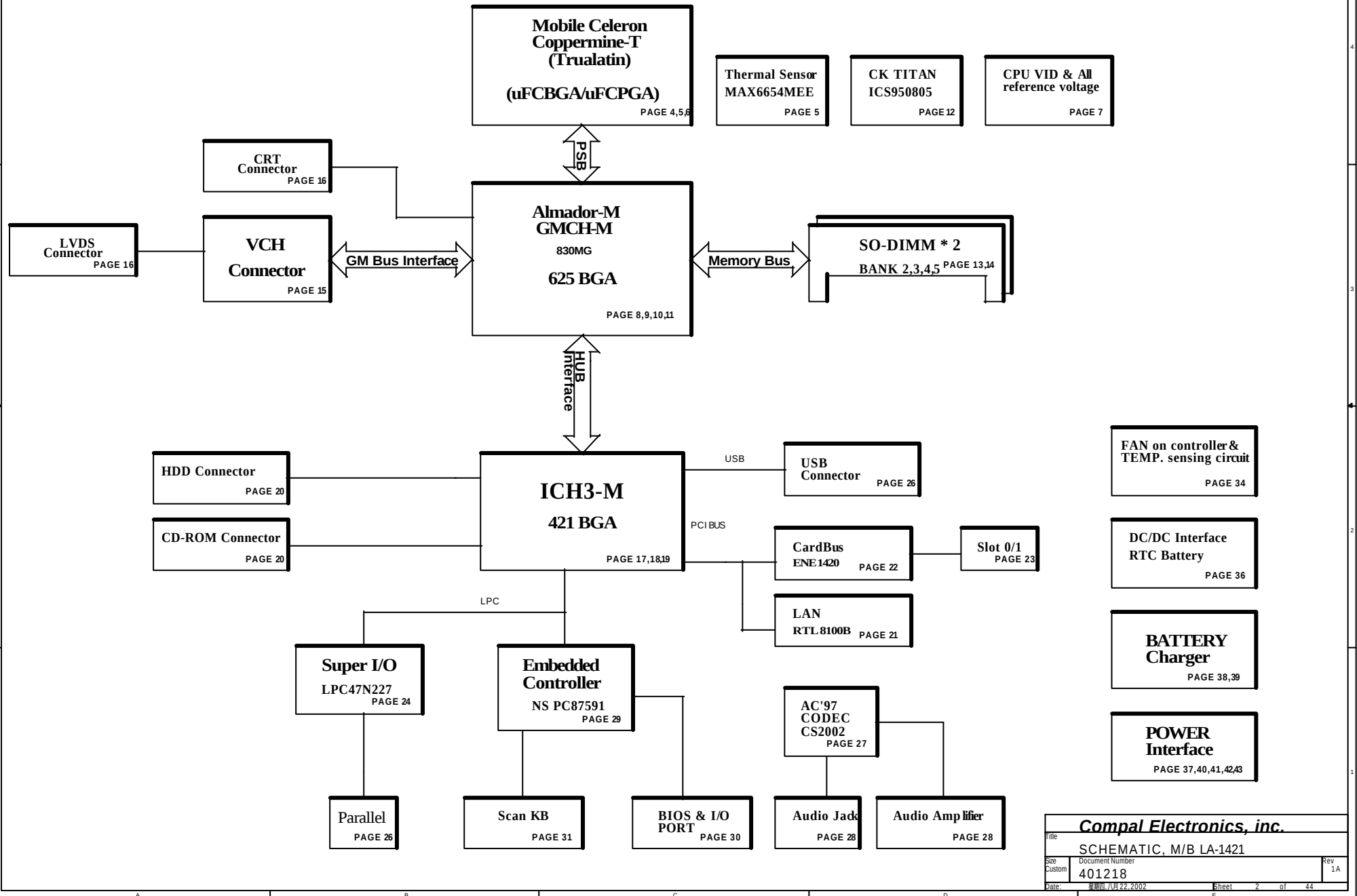
uFCBGA/uFCPGA for Celeron/ Coppermine-T and Tualatin CPU
Almador-M(830-MG) + ICH3 + VCH

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Size	Document Number		Rev
Custom	401218		1A
Date:	2002年 八月 22 日		Sheet 1 of 44

BLOCK DIAGRAM

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Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter powersupply(19V)	N/A	N/A	N/A
B+	AC or battery power rail for powercircuit.	N/A	N/A	N/A
+VCC_H_CORE	Core voltageforCPU	ON	OFF	OFF
+VTT	1.2V switched power railforCPUAGTLBus	ON	OFF	OFF
+1.5V	1.5V power rail	ON	ON	OFF
+1.5VS	AGP4X	ON	OFF	OFF
+1.8V	1.8V power rail	ON	ON	OFF
+1.8VS	1.8V switched powerrail	ON	OFF	OFF
+3VALW	3.3V always on powerrail	ON	ON	ON*
+3V	3.3V power rail	ON	ON	OFF
+3VS	3.3V switched powerrail	ON	OFF	OFF
+5VALW	5V always on powerrail	ON	ON	ON*
+5V	5V power rail	ON	ON	OFF
+5VS	5V switched powerrail	ON	OFF	OFF
+12VALW	12V always on powerrail	ON	ON	ON*
+12VS	12V switched powerrail	ON	OFF	OFF
RTCVCC	RTC power	ON	ON	ON

Note : ON* means that this power plane is ON only withACpoweravailable, otherwise it is OFF.

External PCI Devices

Device	IDSEL#	REQ#GNT#	Interrupts
CardBus	AD20	2	PIRQA/PIRQB
On Board LAN	AD17	3	PIRQB

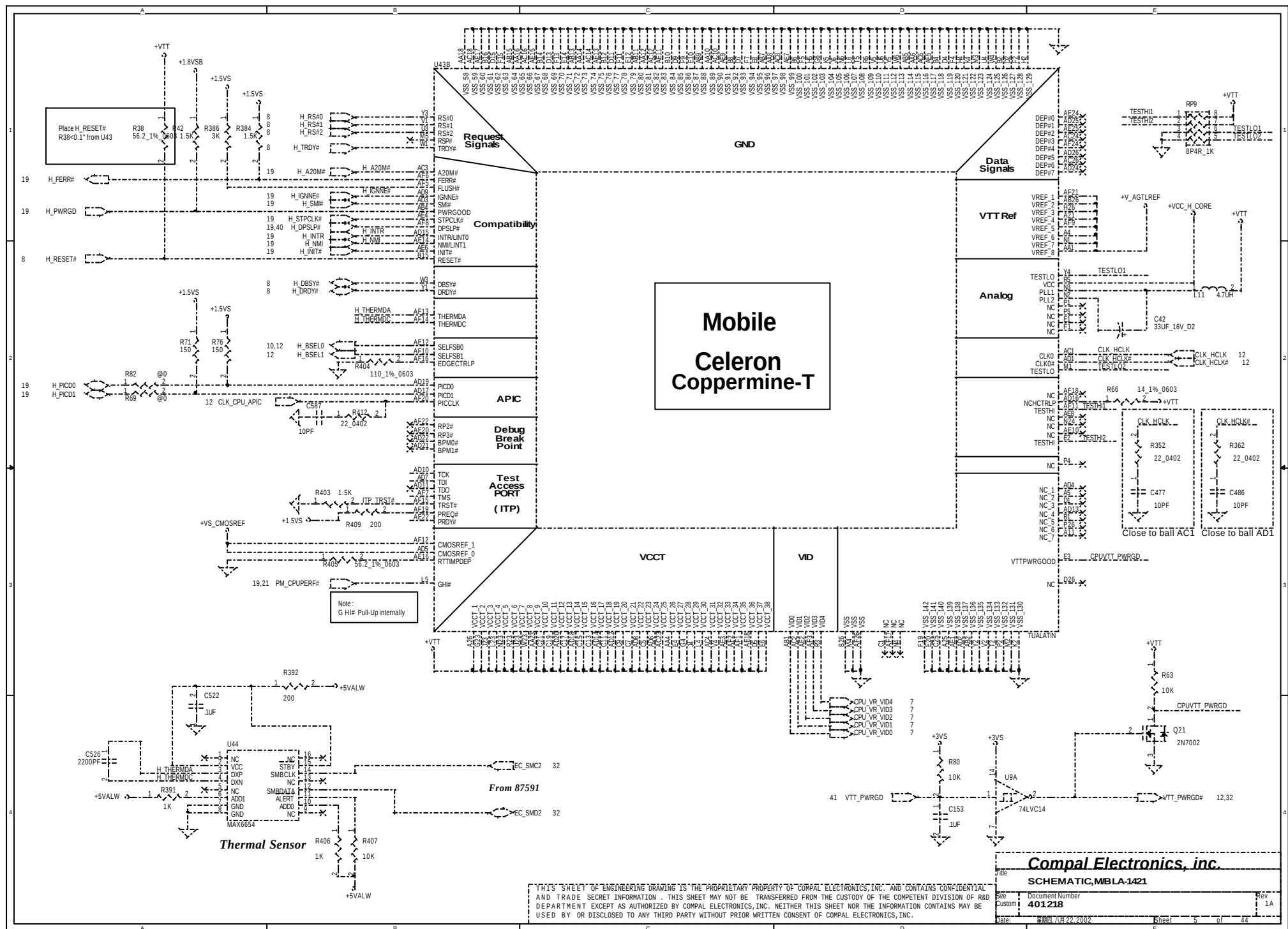
EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	MAX1617MEE	1001 110X b
EEPROM(24C1602)	1010 000X b	Smart Battery	0001 011X b
(24C04)	1011 000Xb	Docking	0011 011X b
		DOT Board	XXXX X XXXb

EC SM Bus2 address

ICH3-M SM Bus address

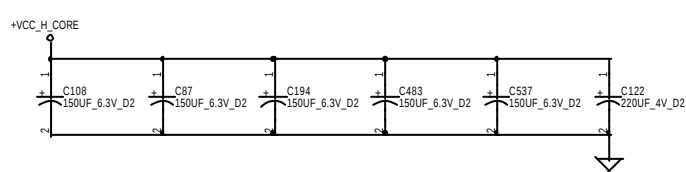
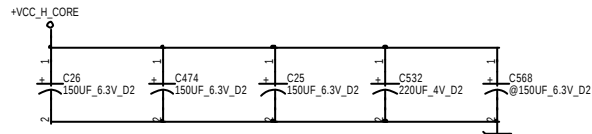
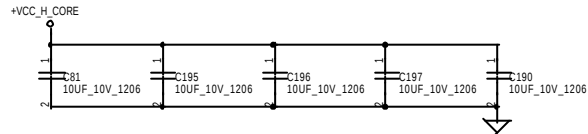
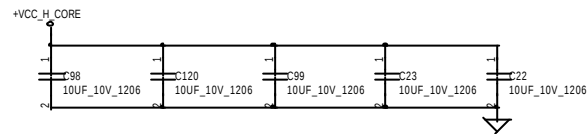
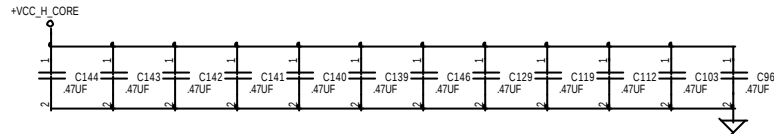
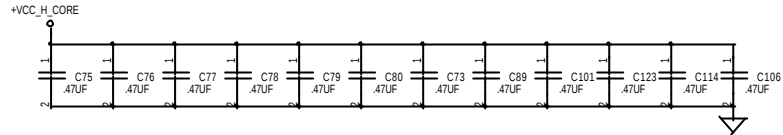
Device	Address
Clock Generator (ICS9238-50)	1101 0000
SDRAM Select (74HC4052)	1010 0000
CPU Voltage VID select (F3565)	0110 111Xb



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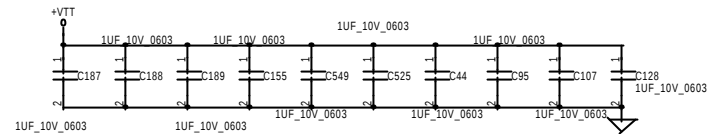
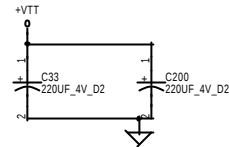
Layout note:

Place close to CPU, Use 2~3 vias per PAD.
Place .47uF caps underneath balls on solder side.
Place 10uF caps on the peripheral near balls.
Use 2~3 vias per PAD.



Layout note:

Place close to CPU,
Use 2 vias per PAD.



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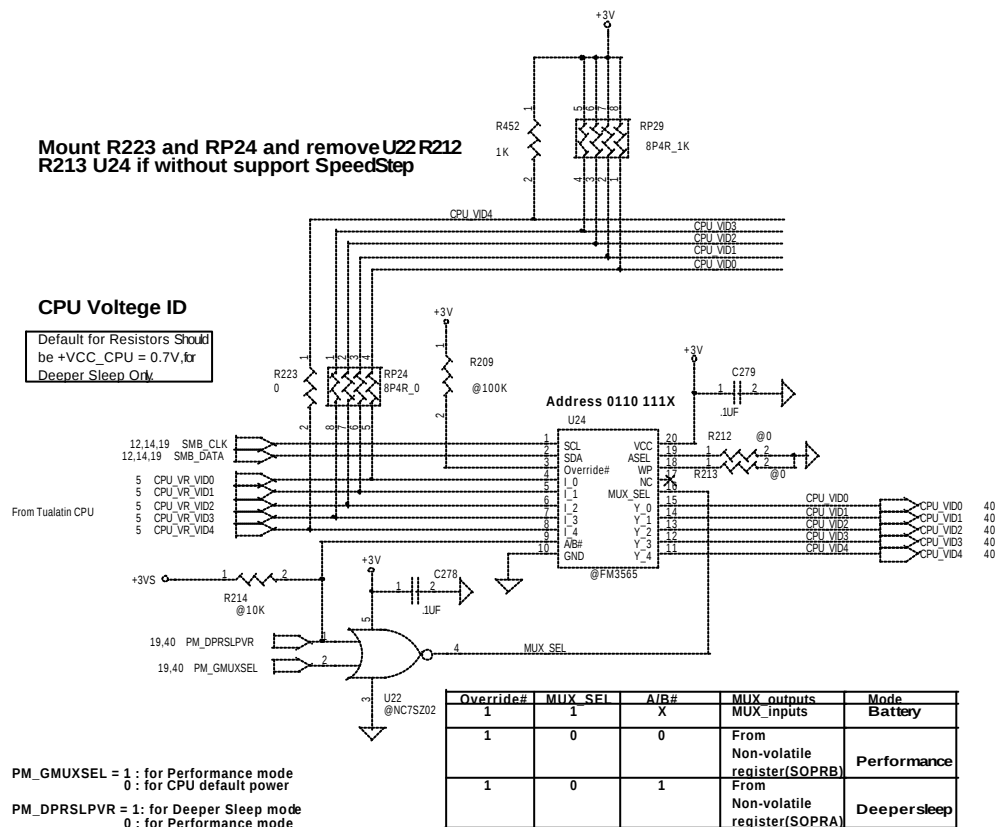
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Size	Document Number	Rev
Custom	401218	1A
Date:	星期四八月22, 2002	Sheet 6 of 44

Mount R223 and RP24 and remove U22 R212 U24 if without support SpeedStep

CPU Voltage ID

Default for Resistors Should be +VCC_CPU = 0.7V, for Deeper Sleep Only.



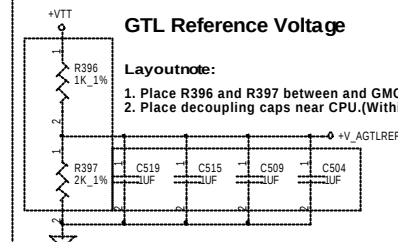
PM_GMUXSEL = 1: for Performance mode
0: for CPU default power

PM DPRSLPVR = 1: for Deeper Sleep mode
0: for Performance mode

GTL Reference Voltage

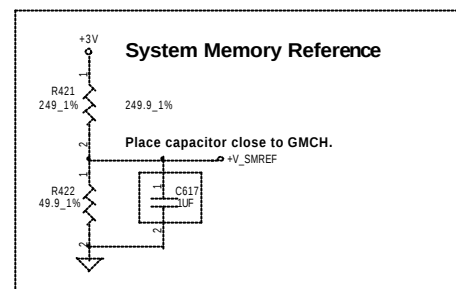
Layoutnote:

1. Place R396 and R397 between and GMCH and CPU.
2. Place decoupling caps near CPU.(Within 500mils)



System Memory Reference

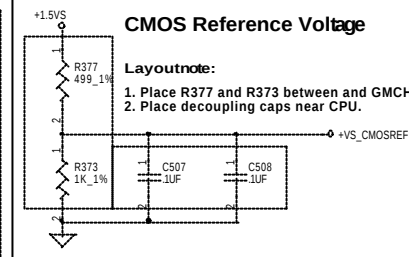
Place capacitor close to GMCH.



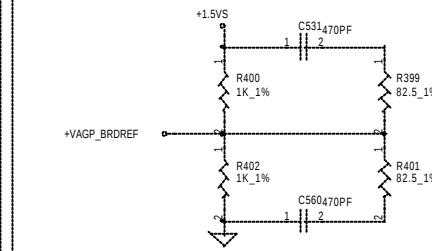
CMOS Reference Voltage

Layoutnote:

1. Place R377 and R373 between and GMCH and CPU.
2. Place decoupling caps near CPU.



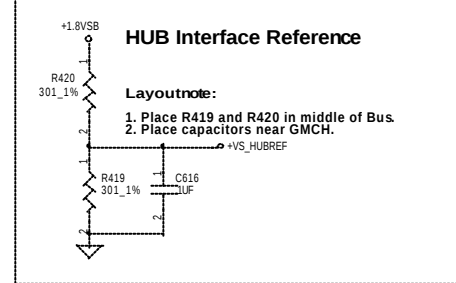
Place Reference Circuit near GMCH



HUB Interface Reference

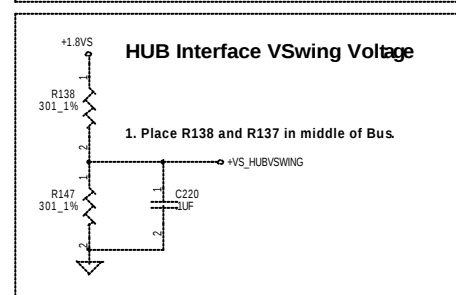
Layoutnote:

1. Place R419 and R420 in middle of Bus.
2. Place capacitors near GMCH.



HUB Interface VSwing Voltage

1. Place R138 and R137 in middle of Bus.



1. Place R393 and R394 near GMCH.

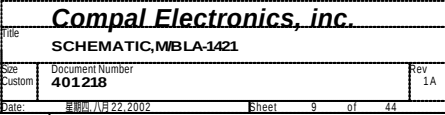


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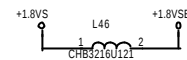
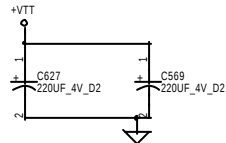
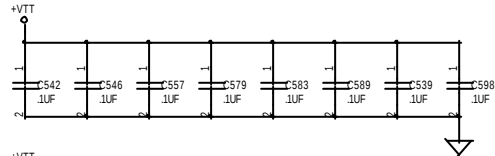
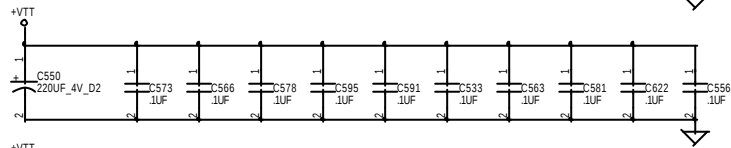
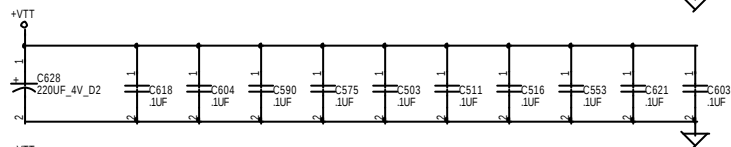
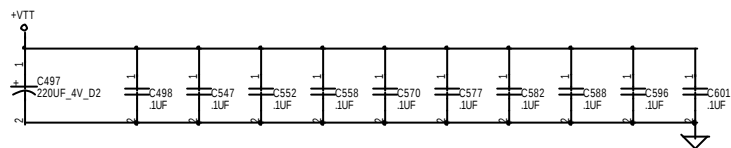
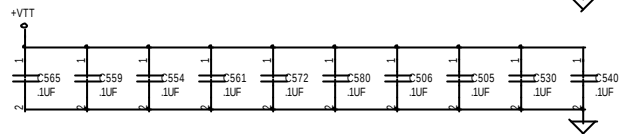
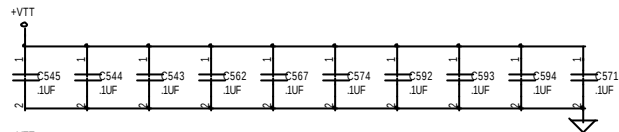
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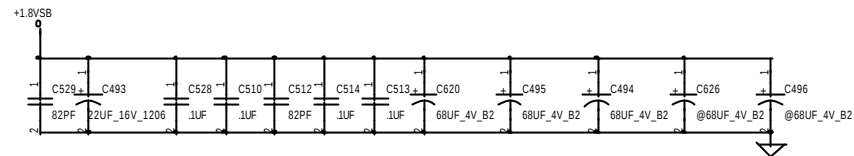
File	Document Number	Rev
401218	1A	
Date	2002/08/22	Sheet 7 of 44



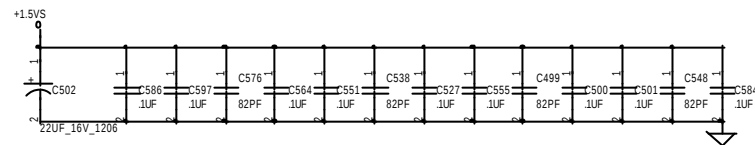
Layout note:
Distribute as close as possible
to GMCH Processor Quadrant .



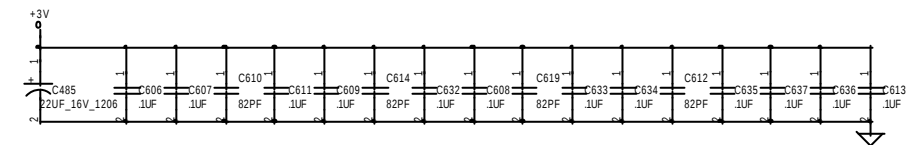
Layout note:
Distribute as close as possible
to GMCH Local Memory Quadrant .



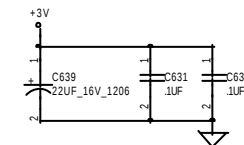
Layout note:
Distribute as close as possible
to GMCH AGP/DVO Quadrant .



Layout note:
Distribute as close as possible
to GMCH System Memory Quadrant .

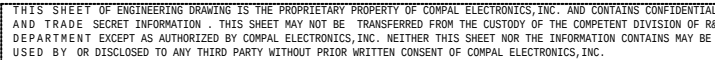


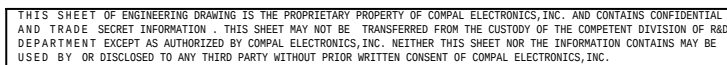
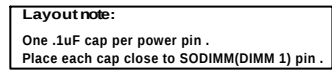
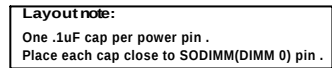
Layout note:
Distribute as close as possible
to IO Quadrant .



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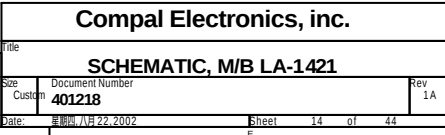
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SCHEMATIC, MBLA-1421		
Size	Document Number	Rev
Custom	401218	1A
Date:	2002年八月22日	Sheet 11 of 44



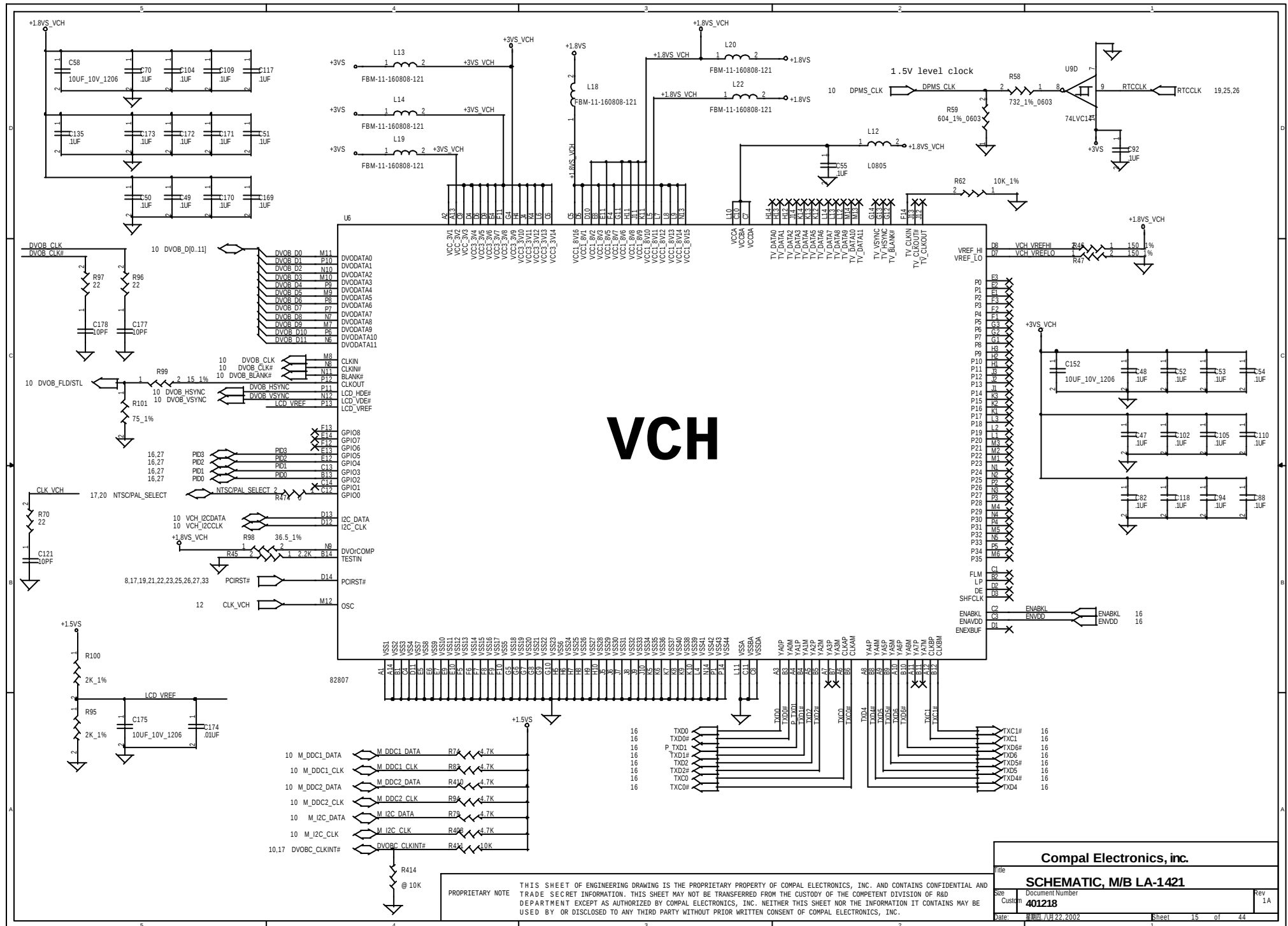


BANK 0/1

BANK 2/3



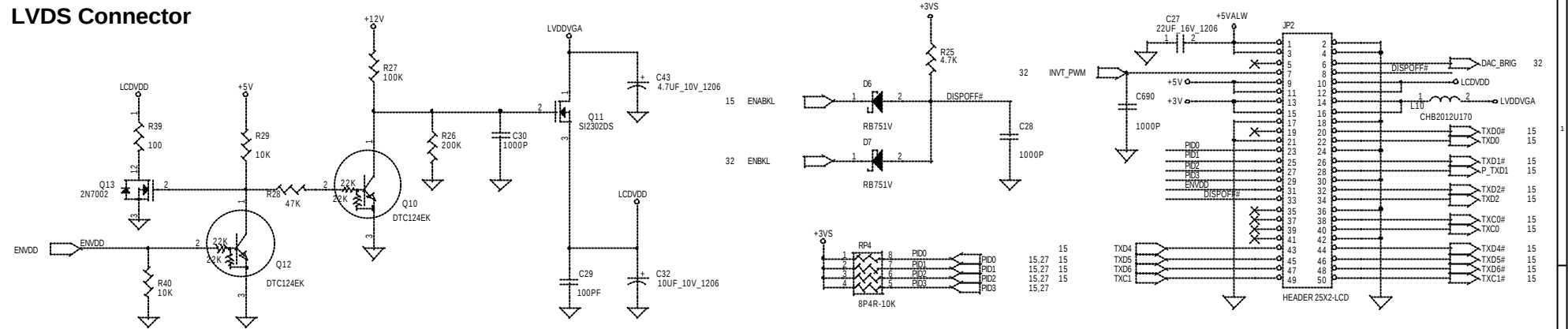
VCH



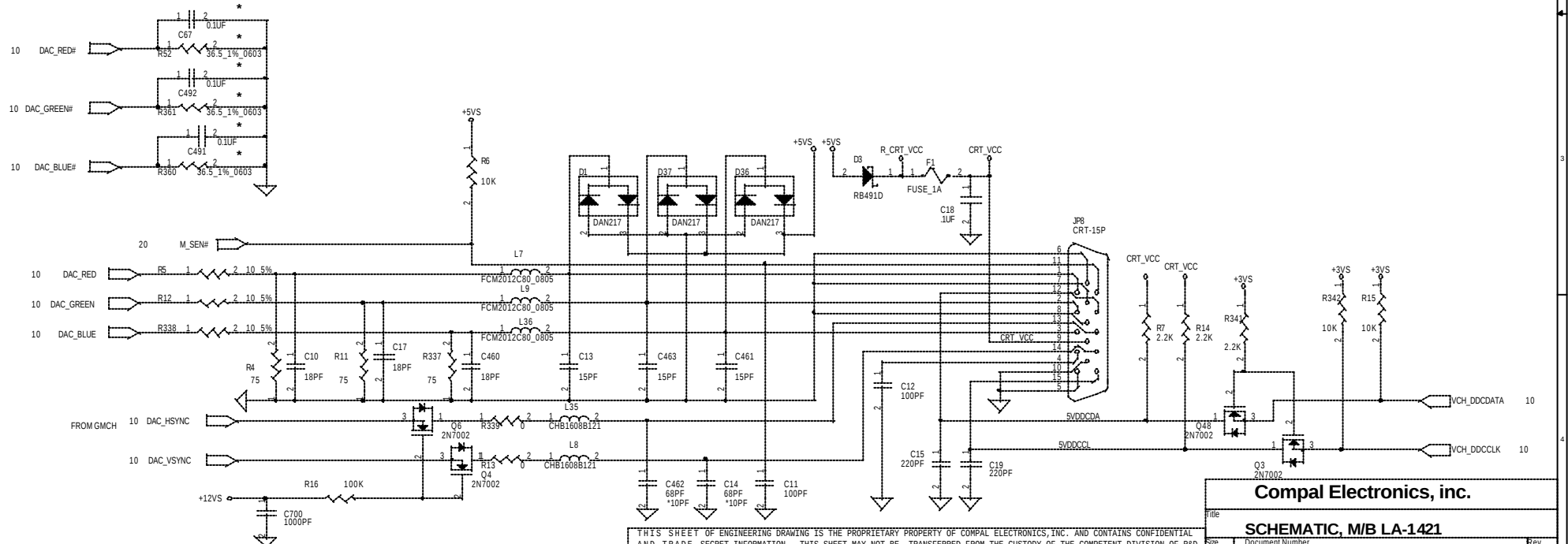
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Size	Document Number	Rev	
Custom	401218	1A	
Date:	2002/11/22	Sheet	15 of 44

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LVDS Connector



CRT Connector

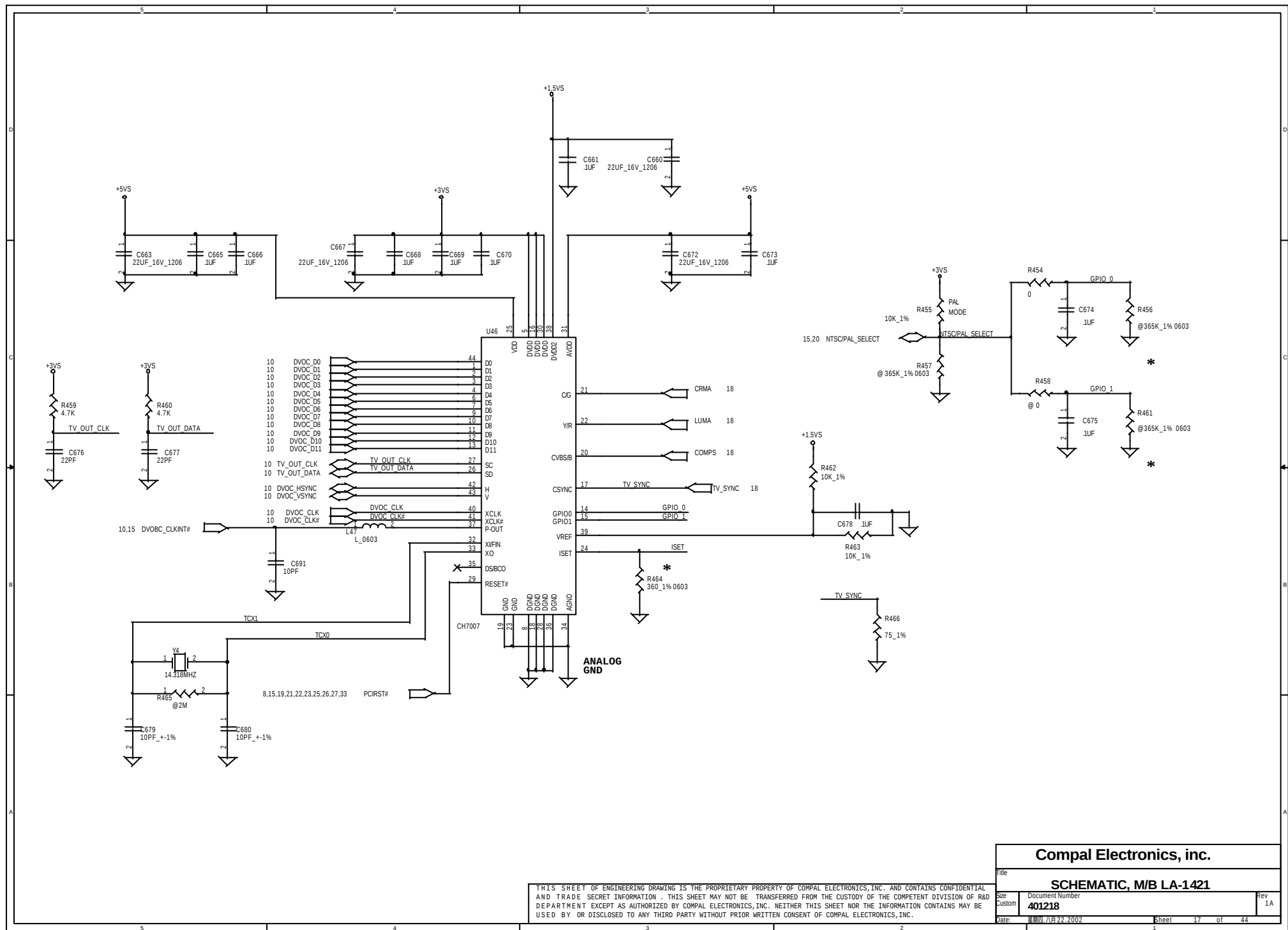


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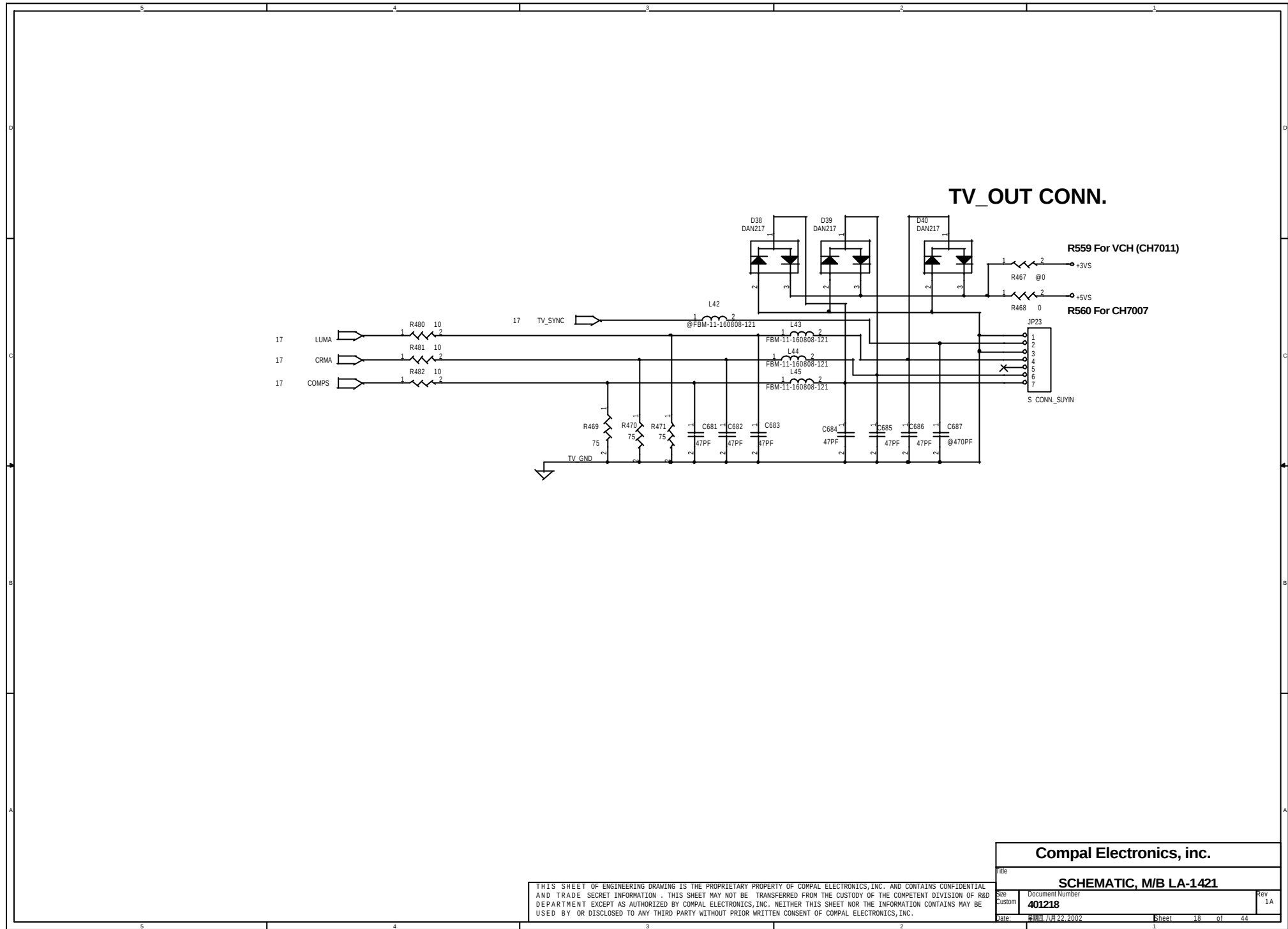
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Size	Document Number	Rev
Custom	401218	1A
Date:	2002/11/22	Sheet 16 of 44

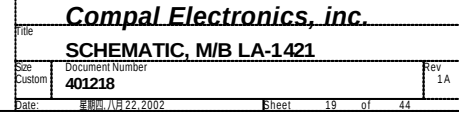


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File	Document Number	Rev	
Custom	401218	1A	
Date: 2002/11/22	Sheet 17	of 44	

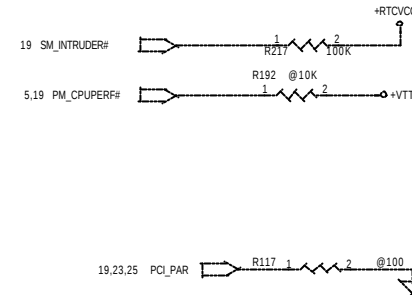
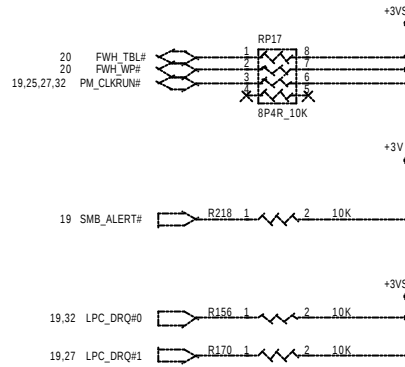
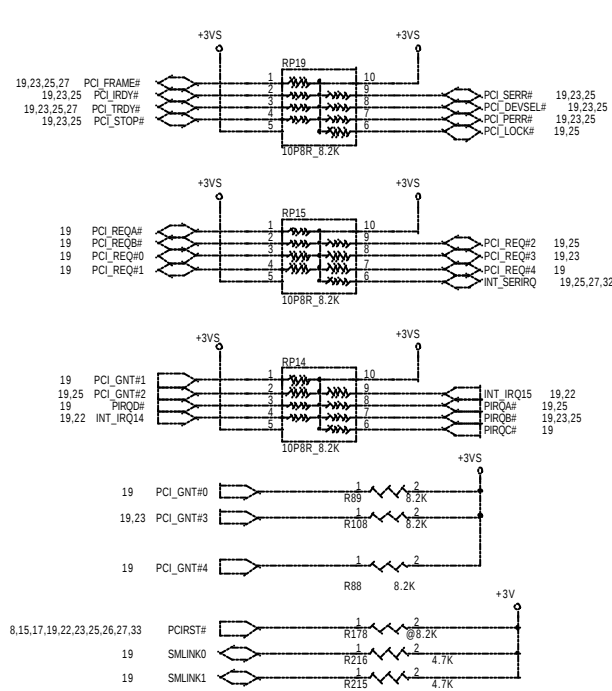


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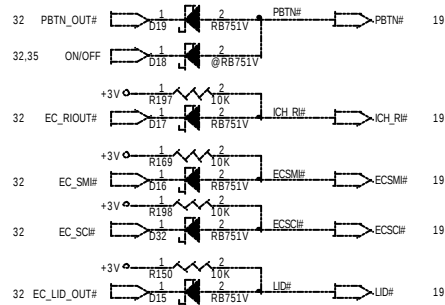
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Size	Document Number	Rev	
Custom	401218	1A	
Date:	2002/11/22	Sheet	18 of 44



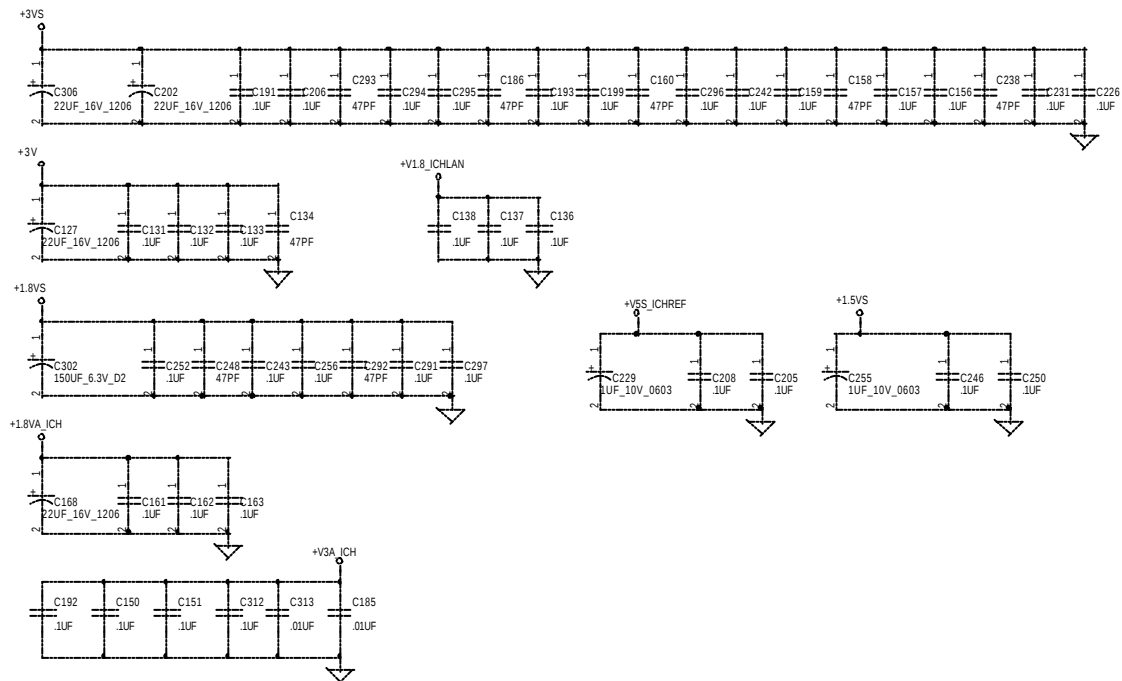
ICH3-M PullUp Resistor



Break Event Between ICH3-M and EC591



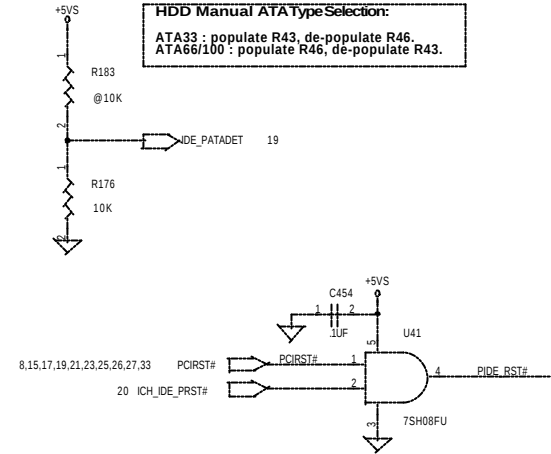
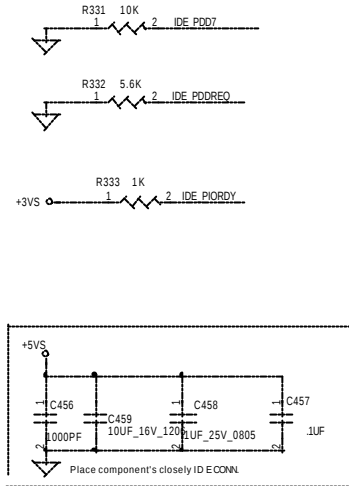
ICH3-M Decoupling Capacitor



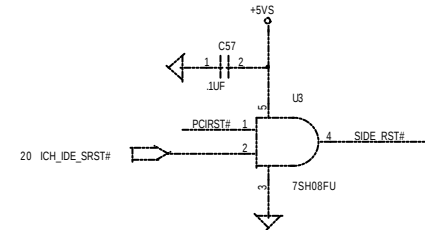
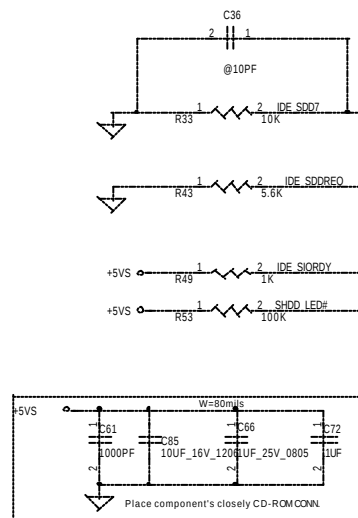
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SCHEMATIC, MBLA-1421			
Size	Document Number	Rev	
Custom	401218	1A	
Date:	2002年8月22日	Sheet	21 of 44

IDE Module CONN.



CD-ROM Module CONN.



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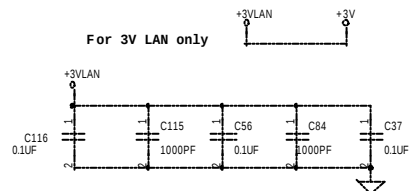
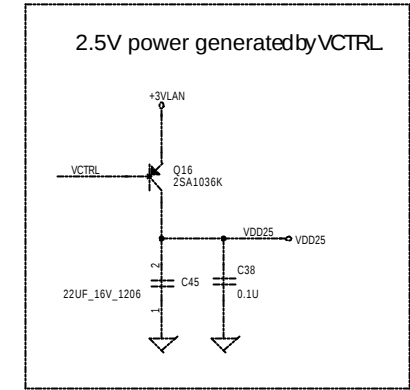
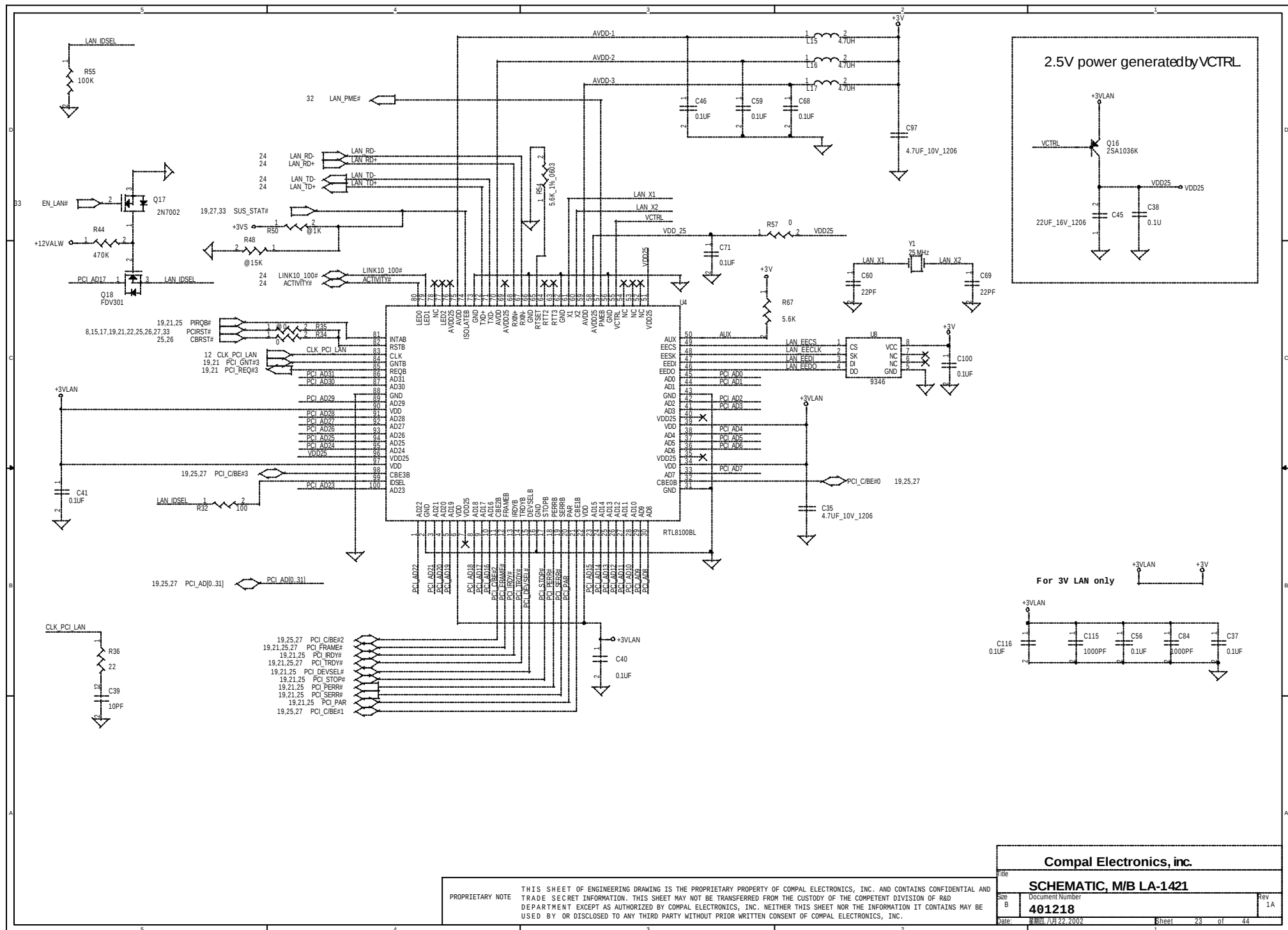
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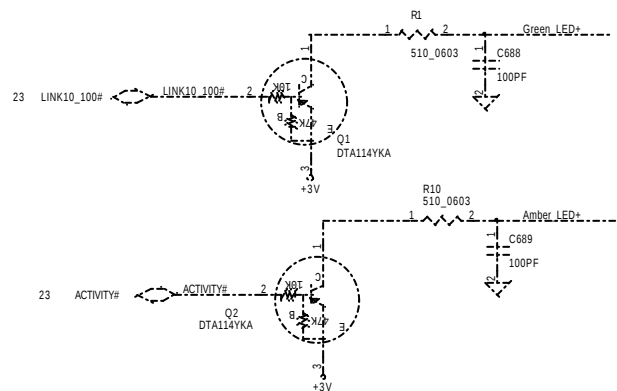
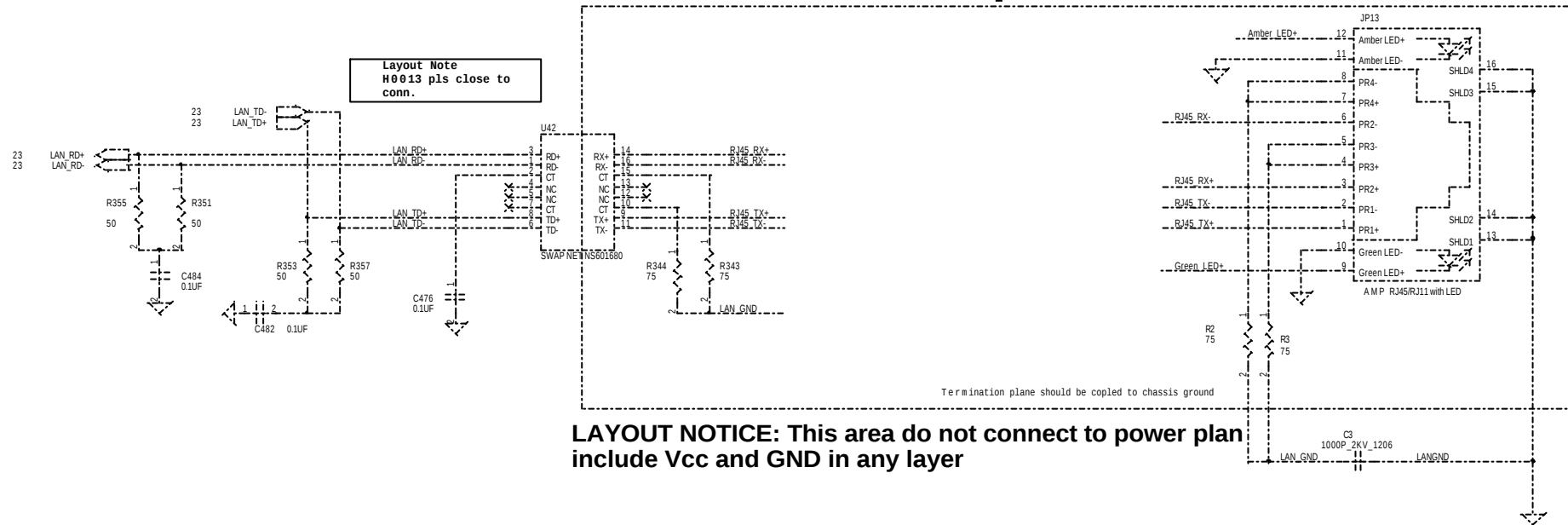
Date: 星期四, 八月 22, 2002 Sheet 22 of 44



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LAN Transformer and Conn.

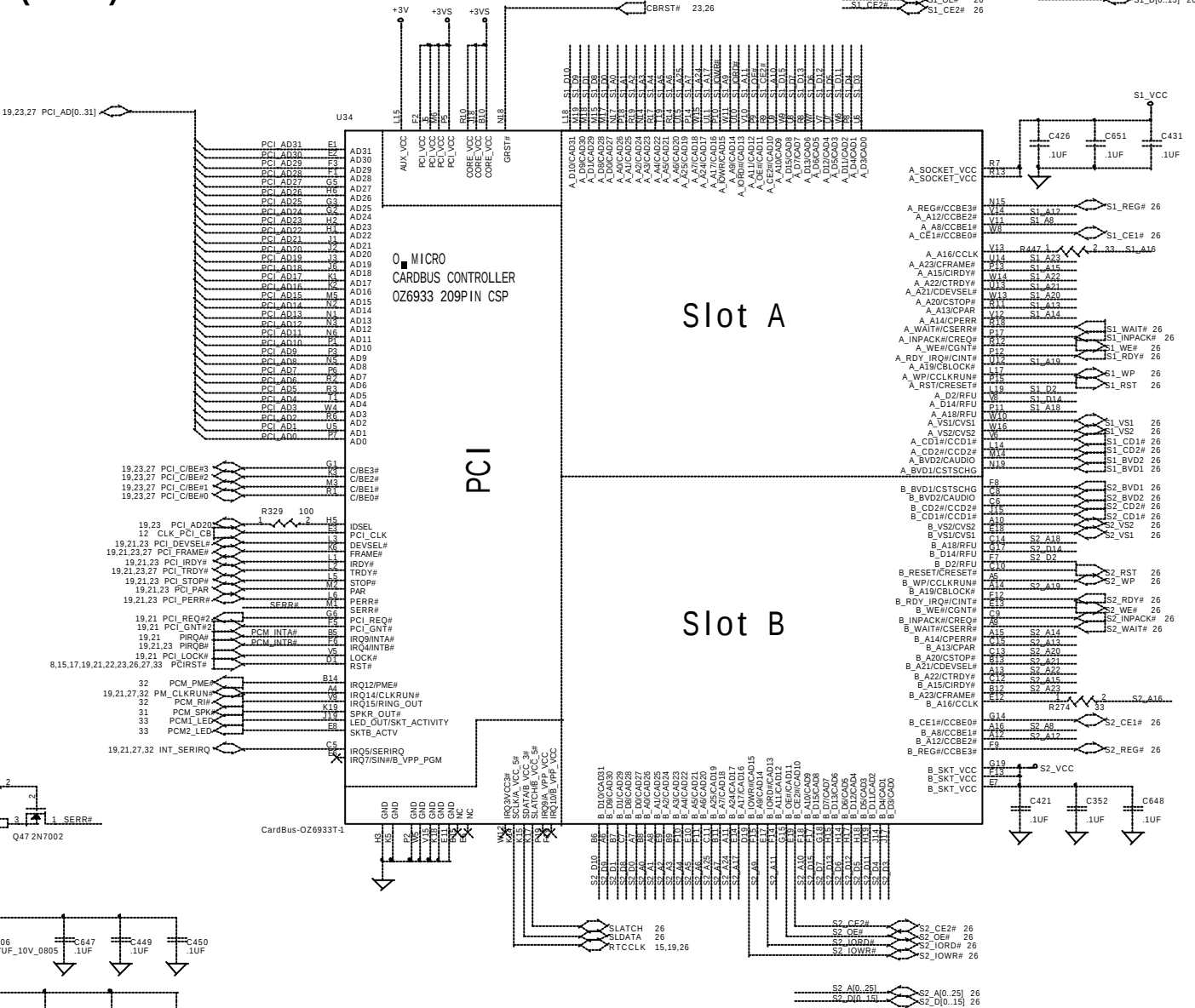
Keep Out 40mil



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File	Document Number	Rev	
B	401218	1A	
Date: 2002/11/22	Sheet 24	of 44	

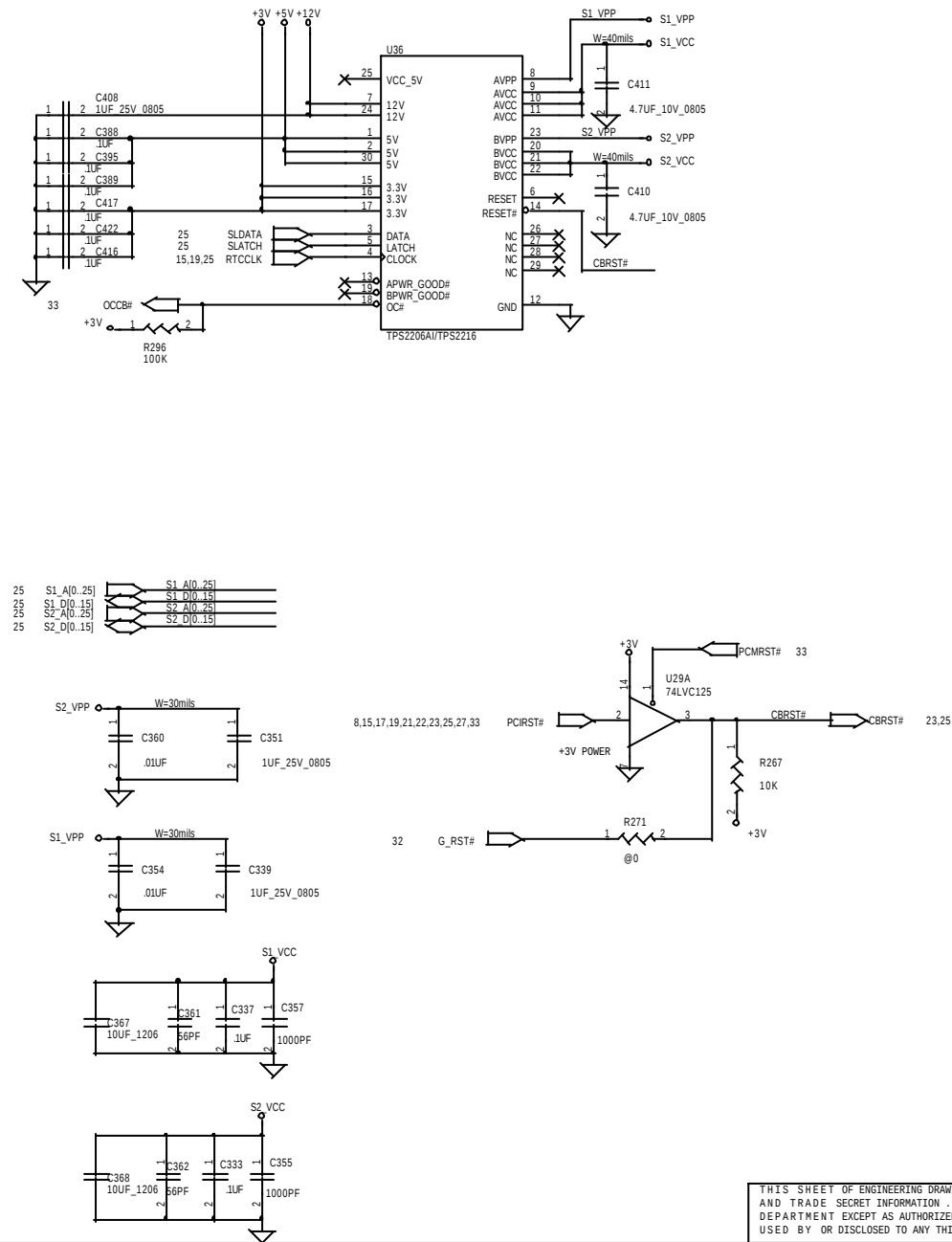
CardBus Controller
OZ6933T (uBGA)



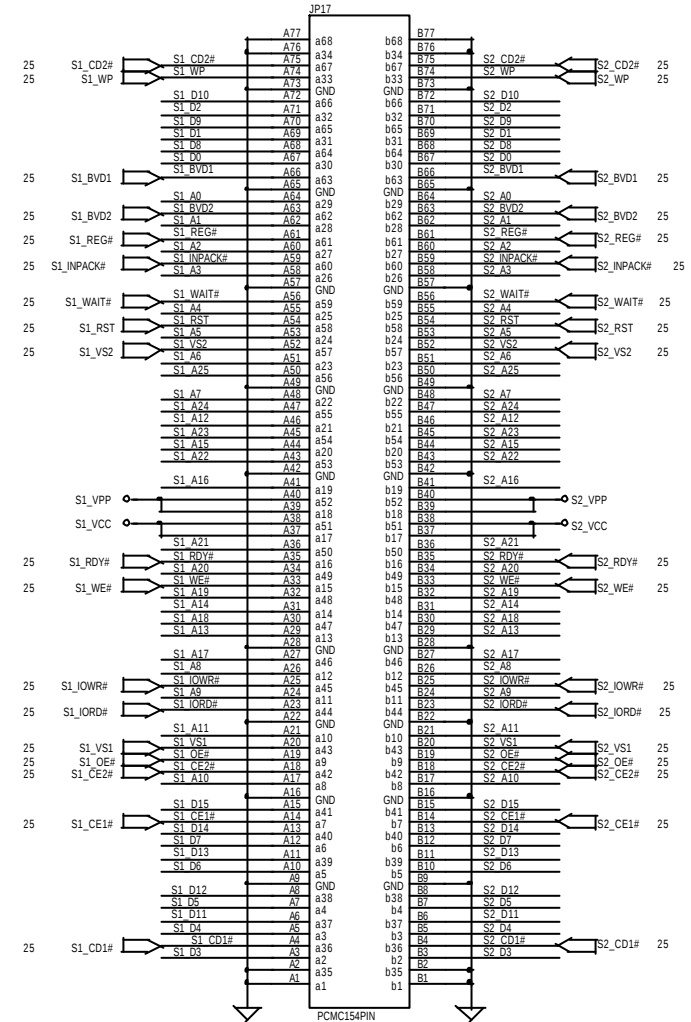
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SCHEMATIC, M/B LA-1421			
Size	Document Number	Rev	
Custor	401218	1A	
Date	2002.02.22	Sheet	25 of 44

PCMCIA POWER CTRL.



CARDBUS SOCKET



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401218

Rev
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Date: 星期四, 八月 22, 2002 Sheet 26 of 44

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19,32 LPC_AD[0..3] LPC_AD[0..3]

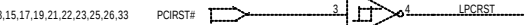


Diagram showing the connection for pins 1 to 4 of the 8P4R_4.7K component:

- Pin 1: DCD#1
- Pin 2: R/#
- Pin 3: CTS#1
- Pin 4: DSR#1

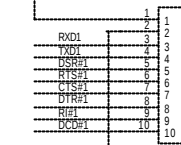
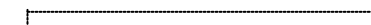


Diagram illustrating the IP19 component (AMP 5-175638-0) and its connections:

- Inputs (Left):**
 - 19.23.25 PCI_AD9
 - 19.21.23.25 PCI_FRAME#
 - 19.23.25 PCI_CBE#2
 - 19.23.25 PCI_AD8
 - 19.23.25 PCI_AD5
 - 19.23.25 PCI_AD1
 - 19.23.25 PCI_AD2
 - 19.23.25 PCI_AD6
 - +5V_S
- Outputs (Right):**
 - PCI_TRDY# 19.21.23.25
 - PCI_CBE#1 19.23.25
 - CLK_PCI_DBC 12
 - PCI_CBE#3 19.23.25
 - PCI_CBE#4 19.23.25
 - PCI_AD7 19.23.25
 - PCI_AD0 19.23.25
 - PCI_AD4 19.23.25
 - PCI_CBE#0 19.23.25
- Component Labels:** IP19, AMP 5-175638-0
- Reference Designators:** @33_0402, @10PF_0402

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SCHEMATIC, M/B LA-1421

Document Number
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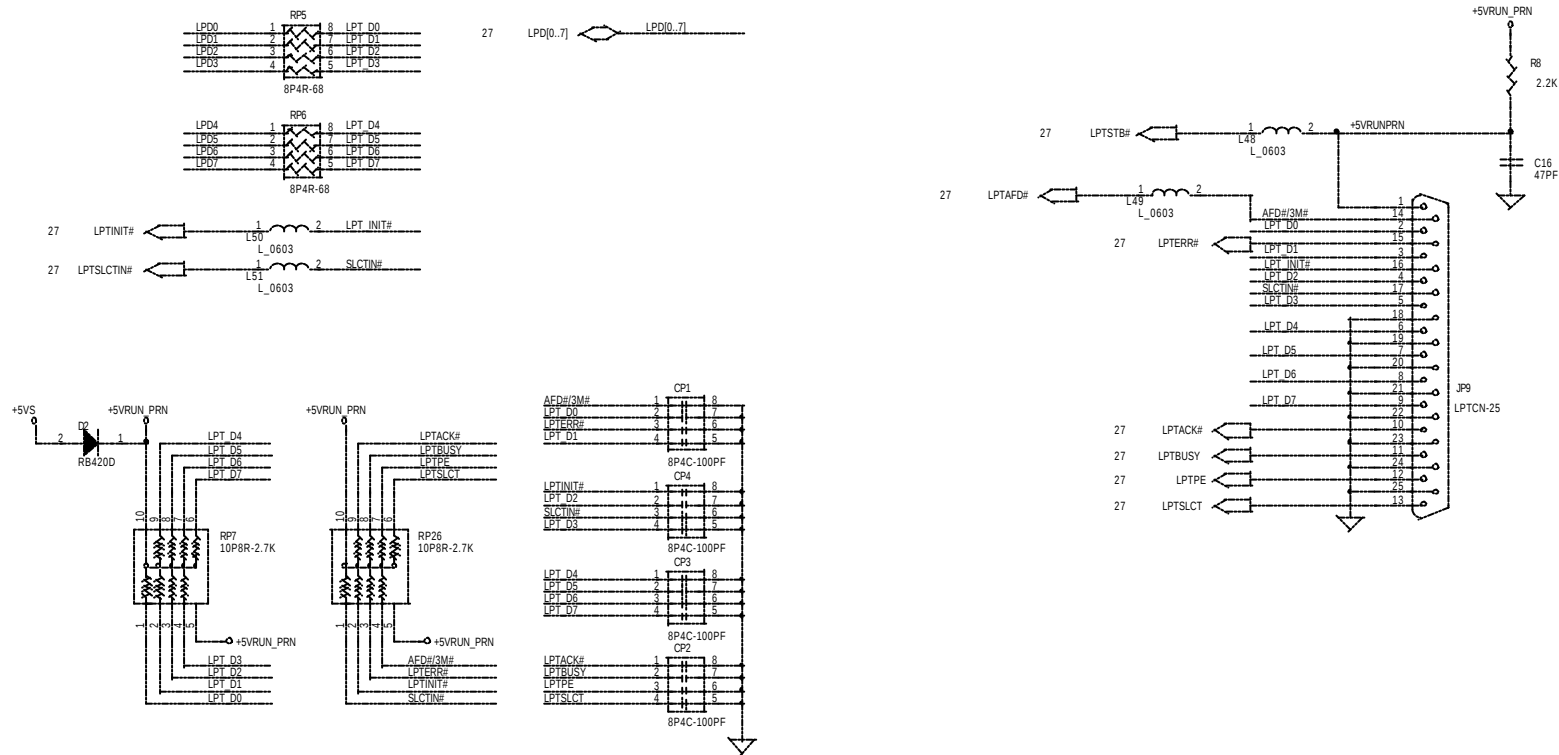
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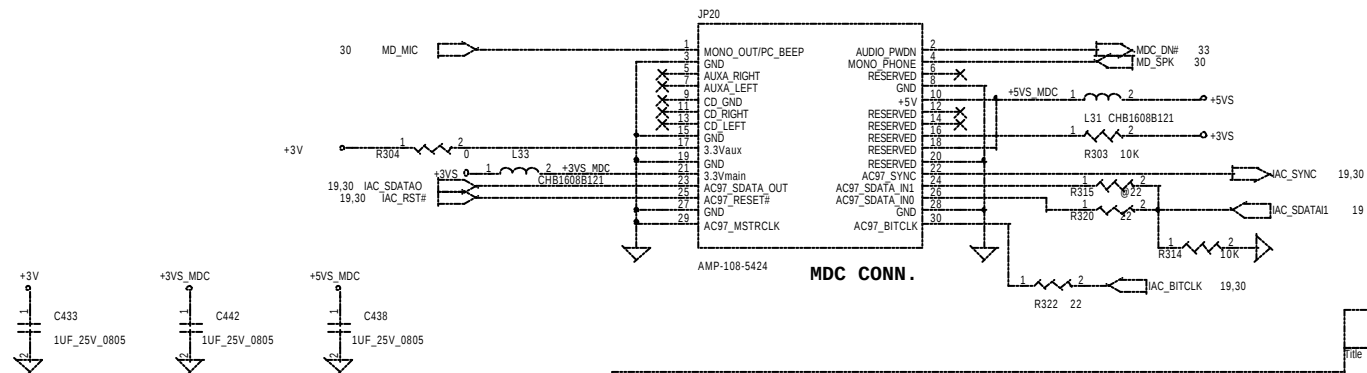
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Date: 星期四, 八月 22, 2002 Sheet 27 of 44

Parallel Port



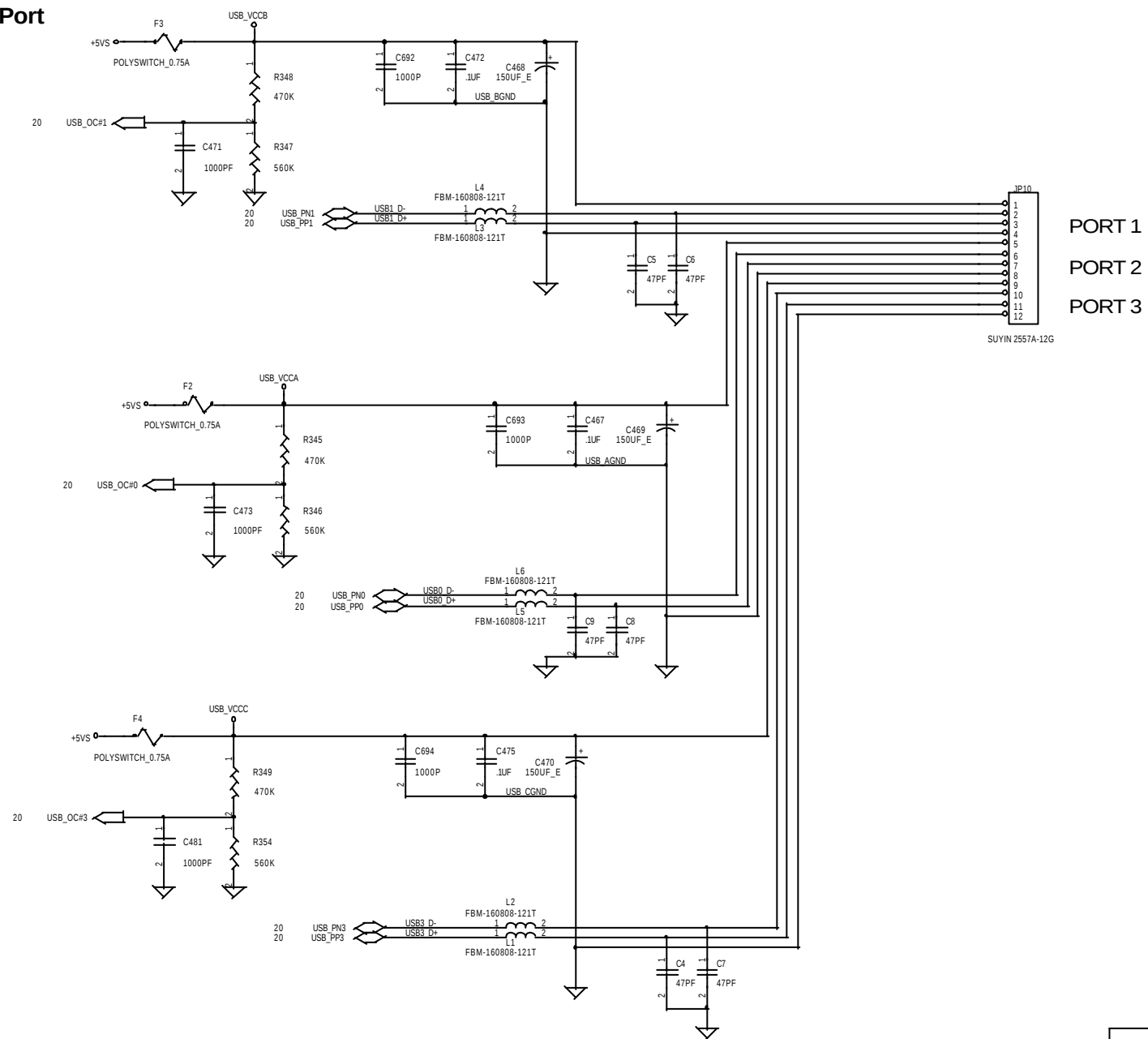
MDC Connector



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File	SCHEMATIC, M/B LA-1421		
Size	Document Number	Rev	
	401218	1A	
Date:	2002/08/22	Sheet	28 of 44

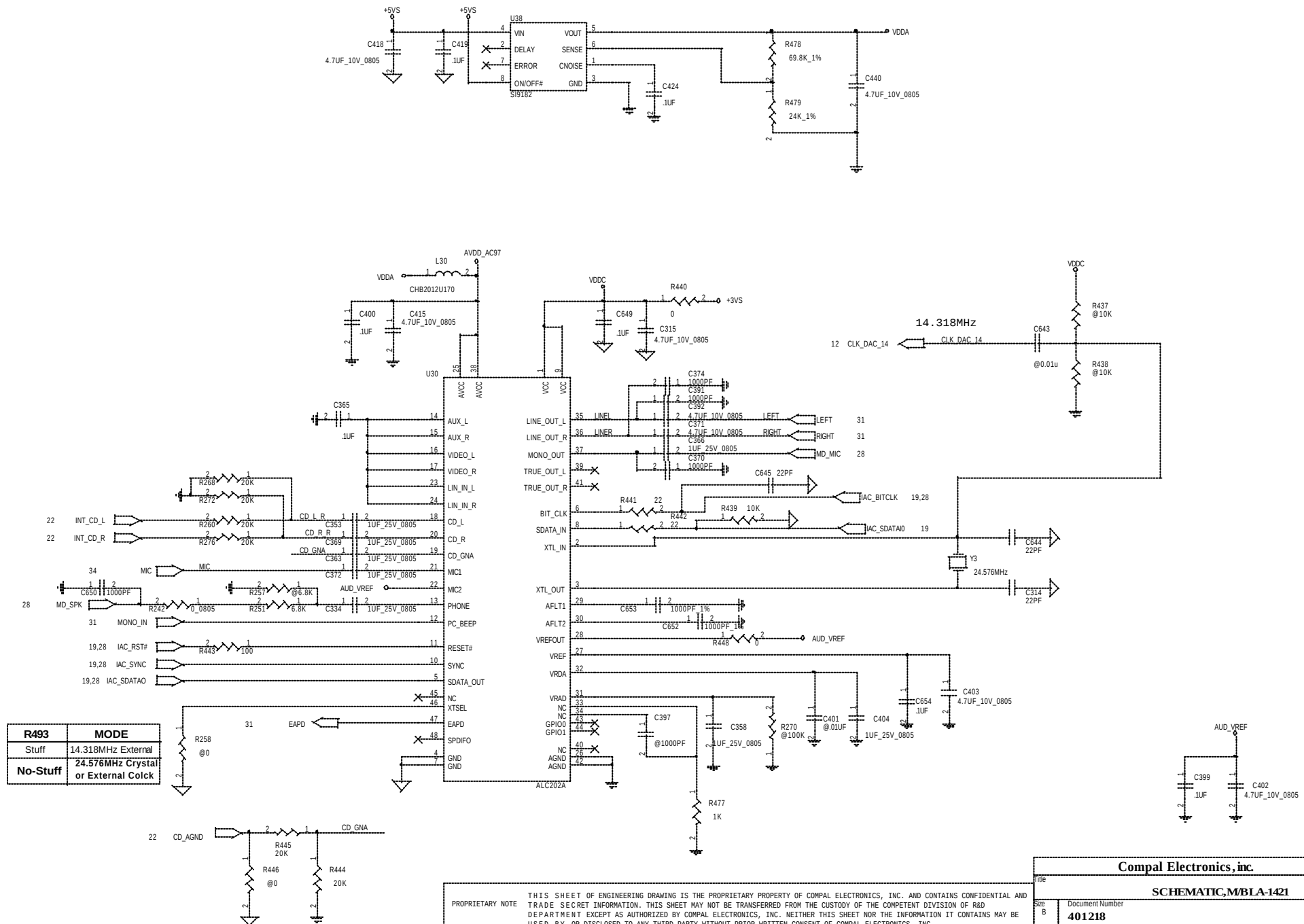
USB Port



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SCHEMATIC, M/B LA-1421			
File	Doc Number	Rev	
401218		1A	
Date: 2002/08/22	Sheet	29	of 44

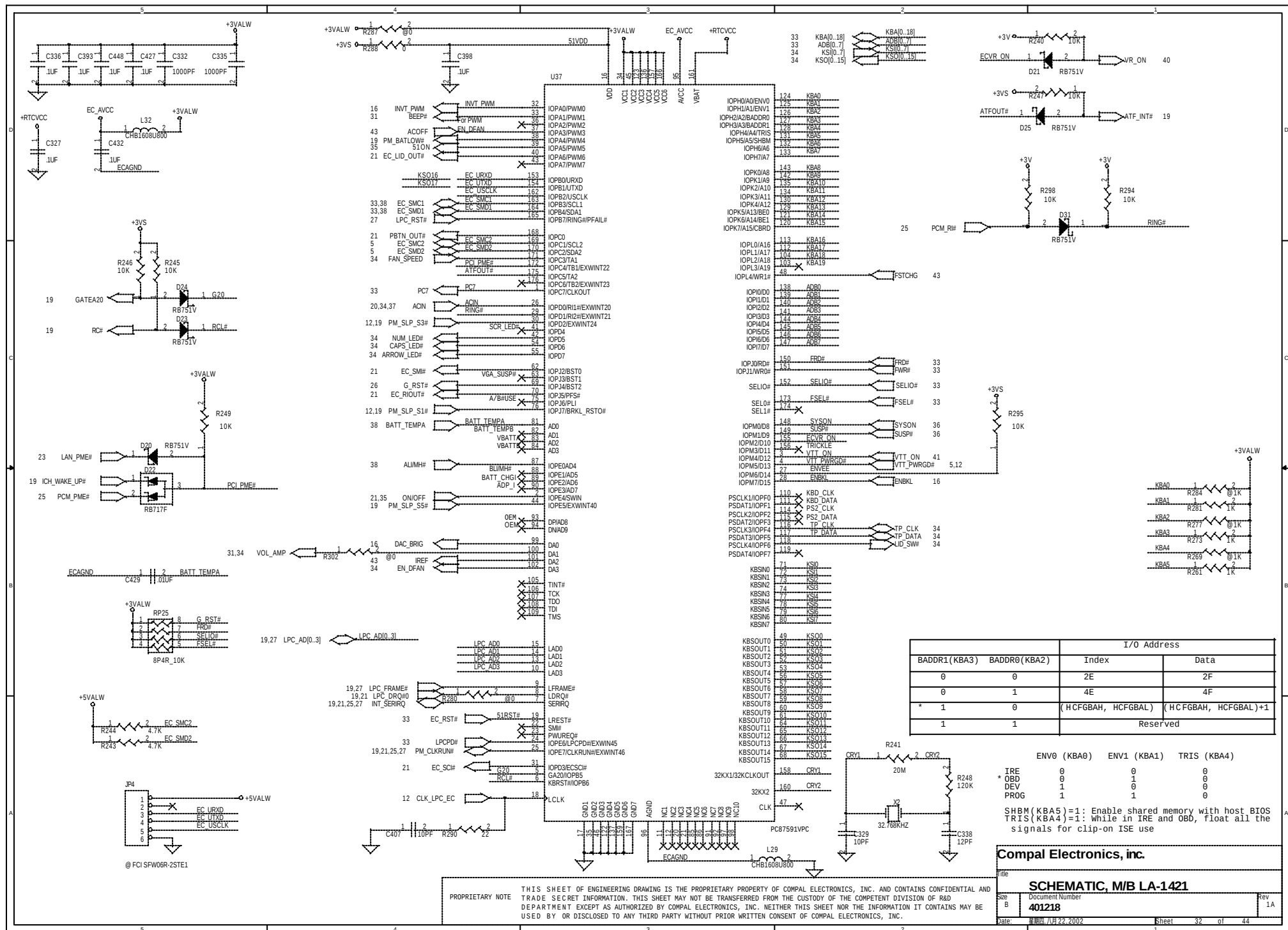
AC97 Audio Codec



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Audio AMP

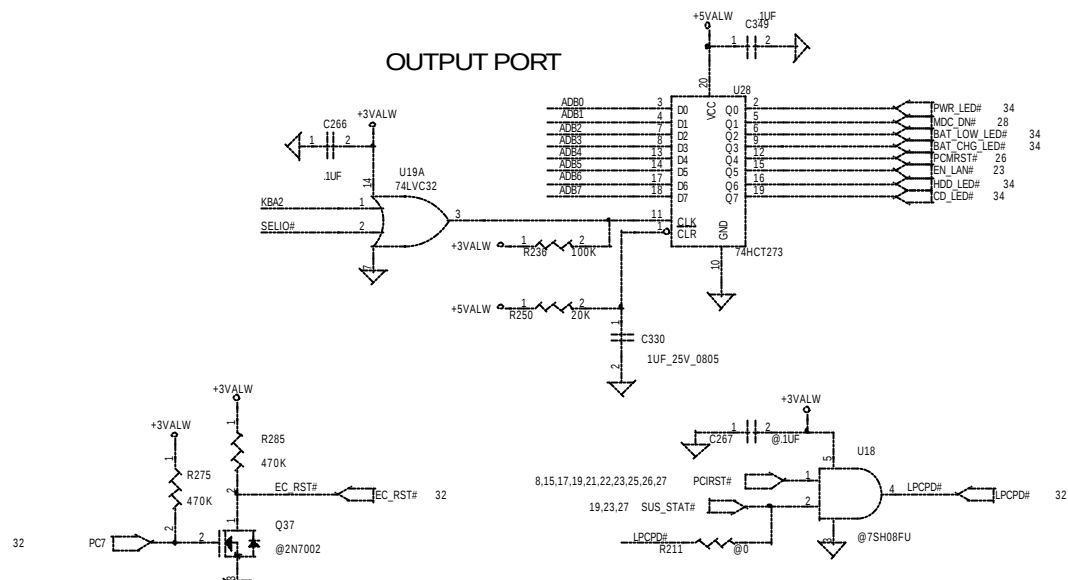
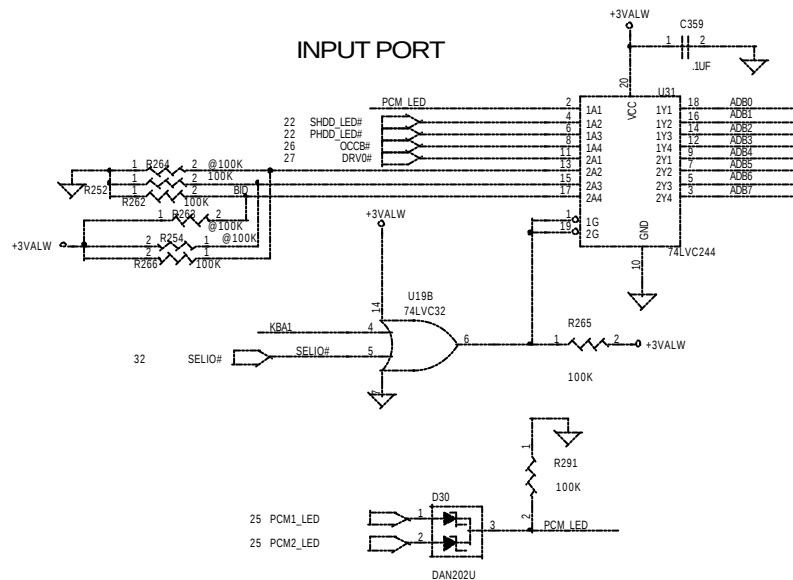
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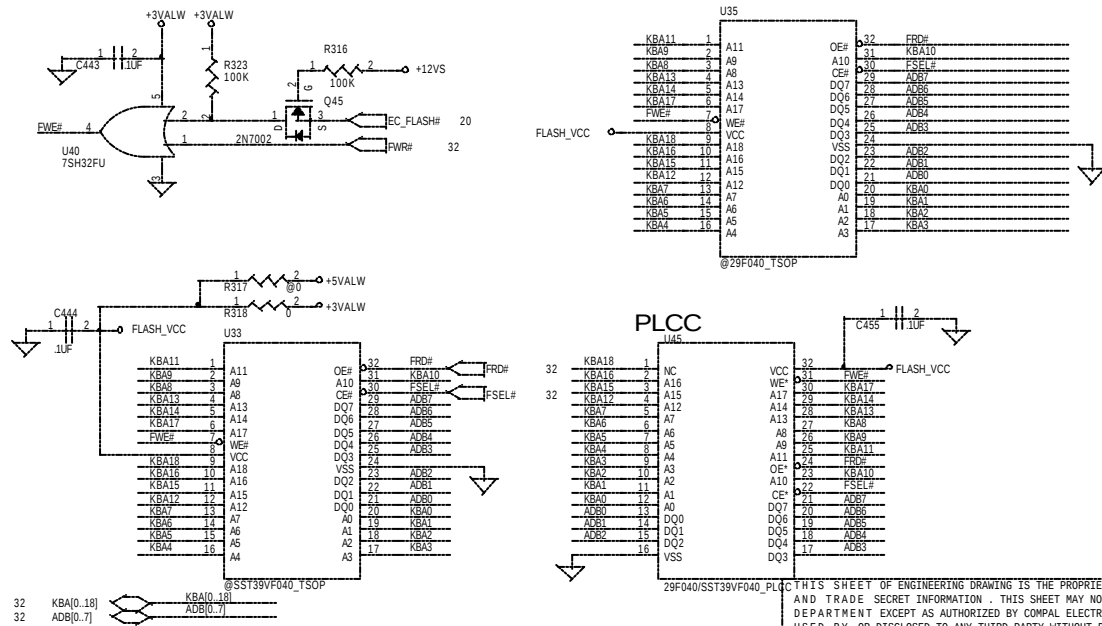
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EXT I/O PORT

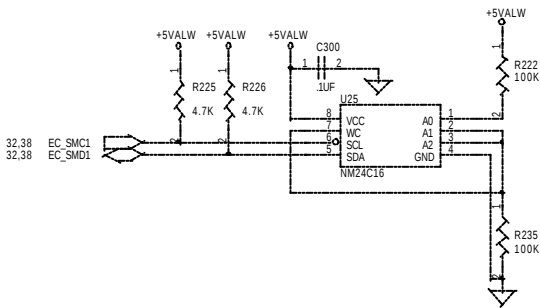


For PC87591 REV 0.A Only

SYSTEM BIOS



SMBus
EEPROM



Compal Electronics, inc.

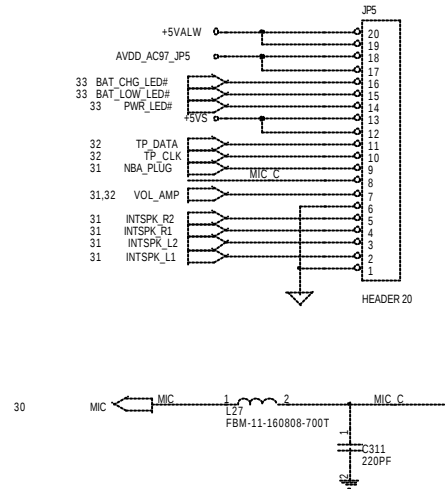
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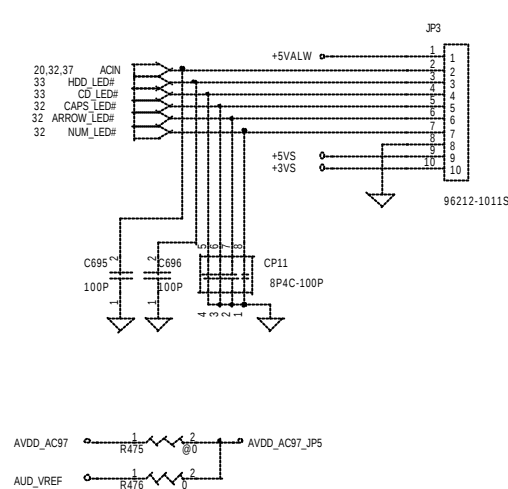
Date: 2002/08/22 Sheet 33 of 44

System Connector

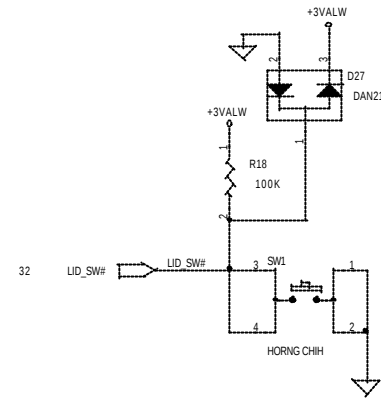
Switch Board Connector



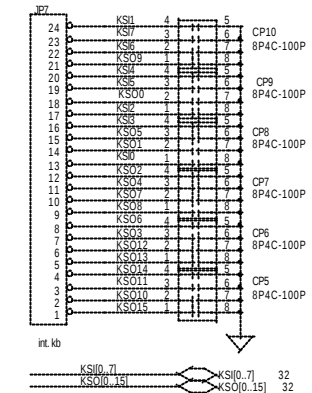
LED Board Connector



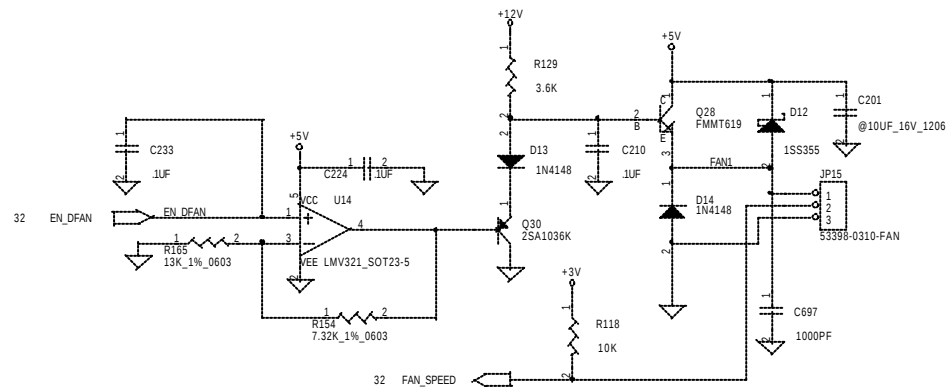
LID Switch



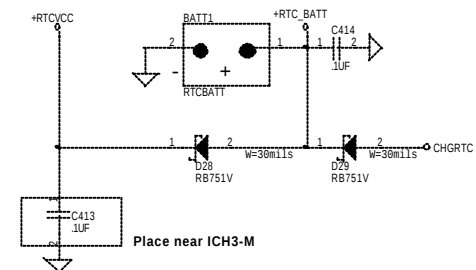
Int. Keyboard Connector



FAN Connector



RTC Batt. Connector



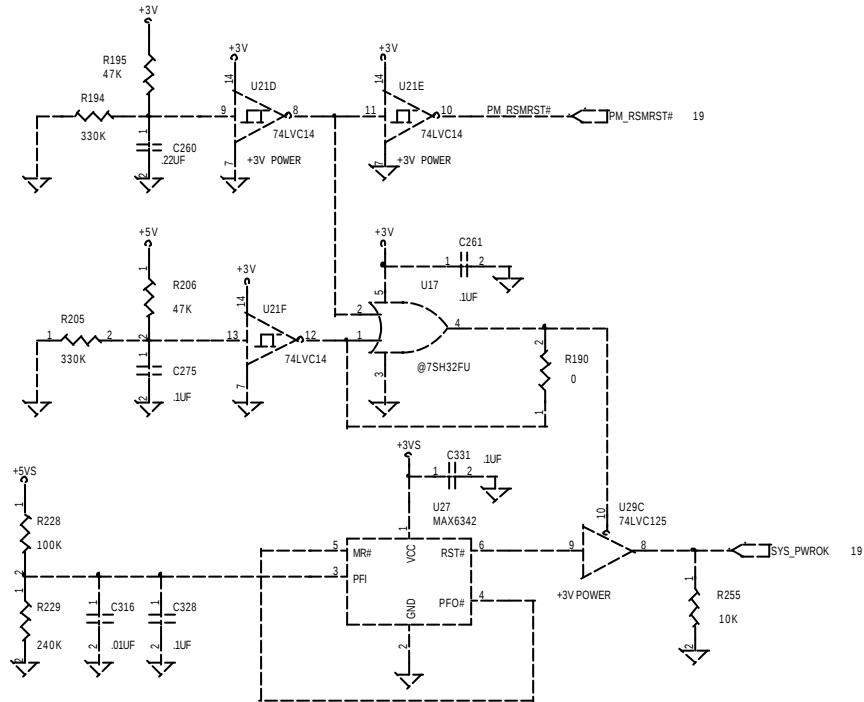
Compal Electronics, inc.

Title	SCHEMATIC, M/B LA-1421
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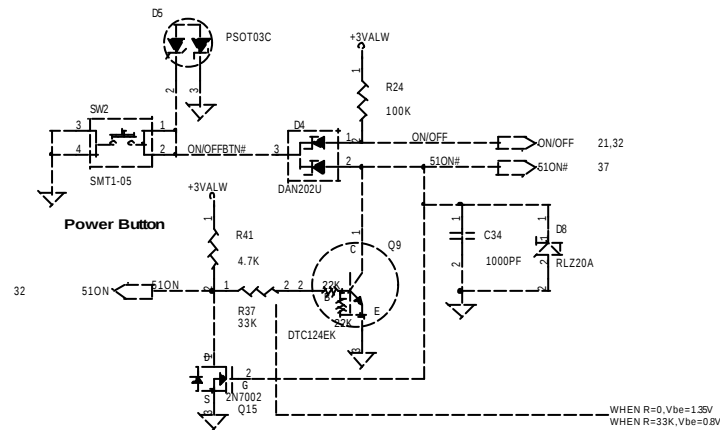
Size	Document Number	Rev
B	401218	1A
Date:	Sheet	34 of 44

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South Bridge Power Good Circuit



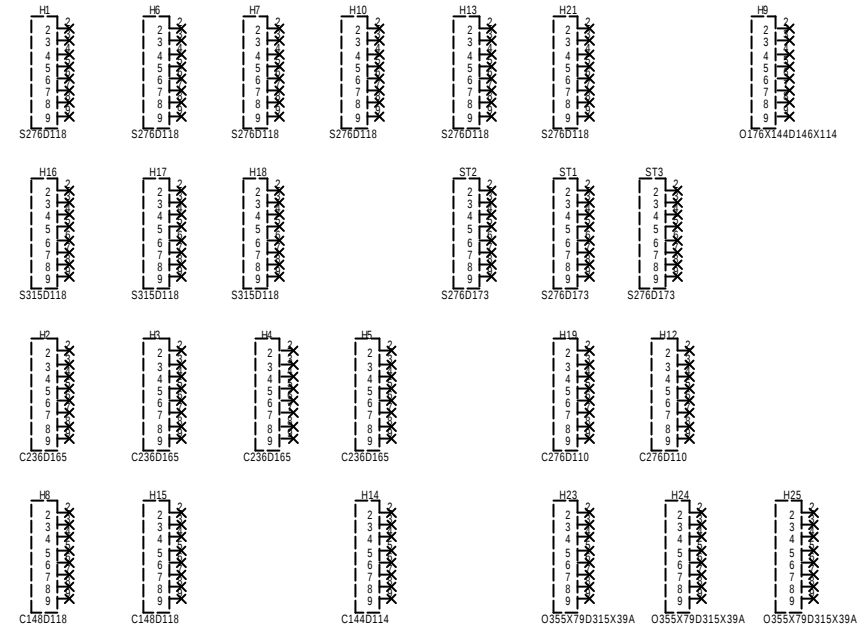
Switch for Power Button



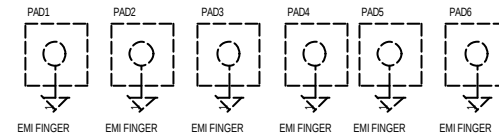
WHEN R=0, Vbe=1.3V
WHEN R=33K, Vbe=0.8V

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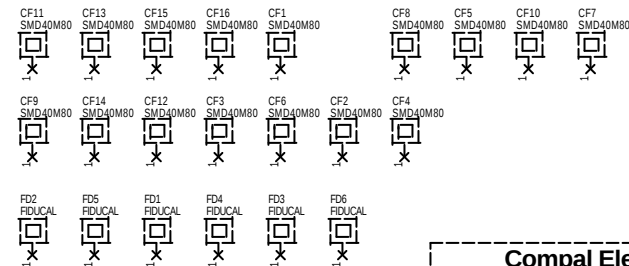
Screw Hole



EMI Finger



Fiducial Mark

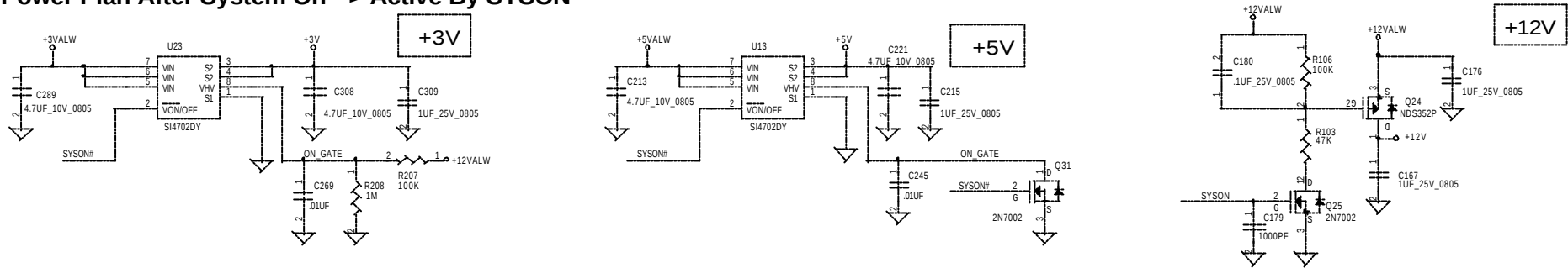


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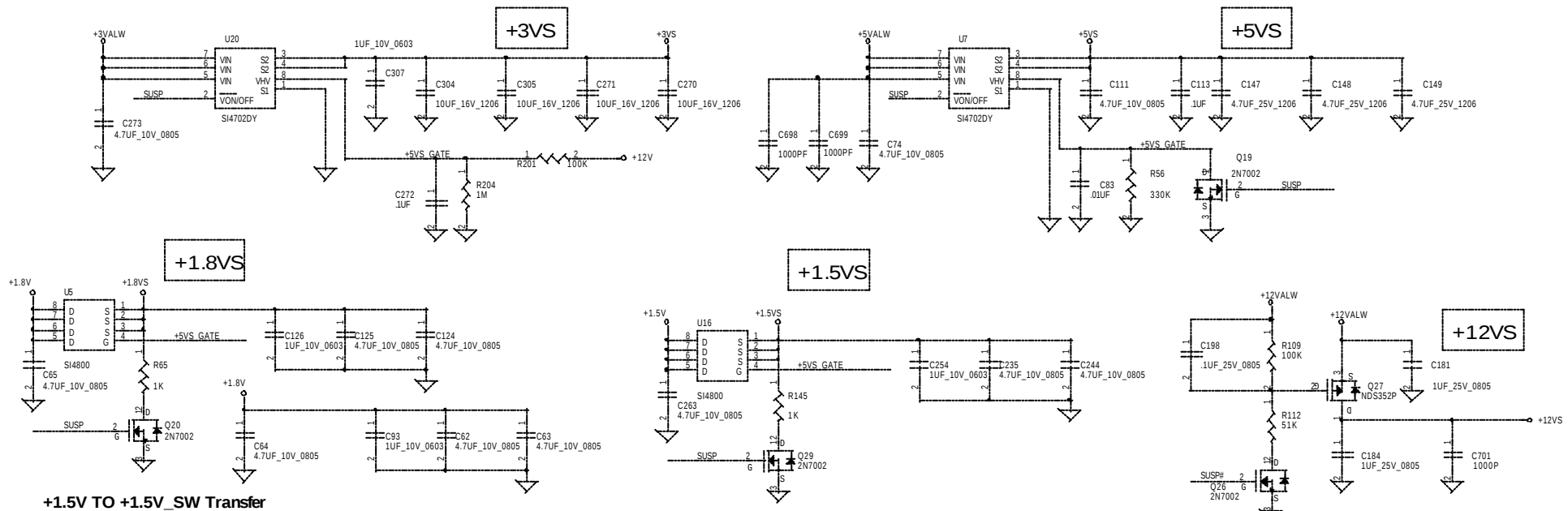
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Doc No	Document Number	Rev
401218	401218	1A
Date	2002/11/22	Sheet 35 of 44

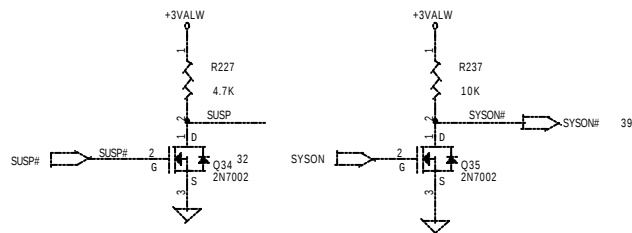
Power Plan After System On --> Active By SYSON



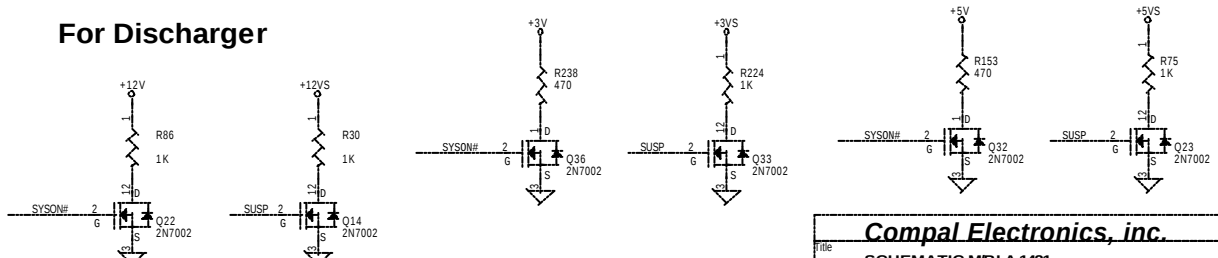
Power Off During System Suspend(S3) --> Active By SUSP



Signal Inverter



For Discharger



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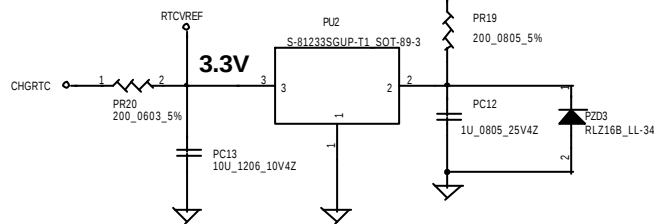
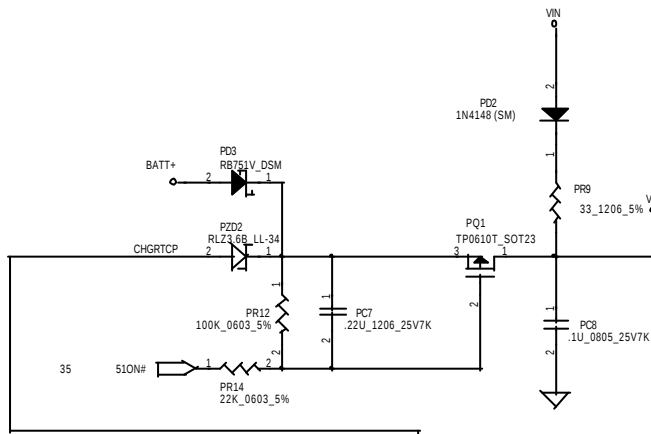
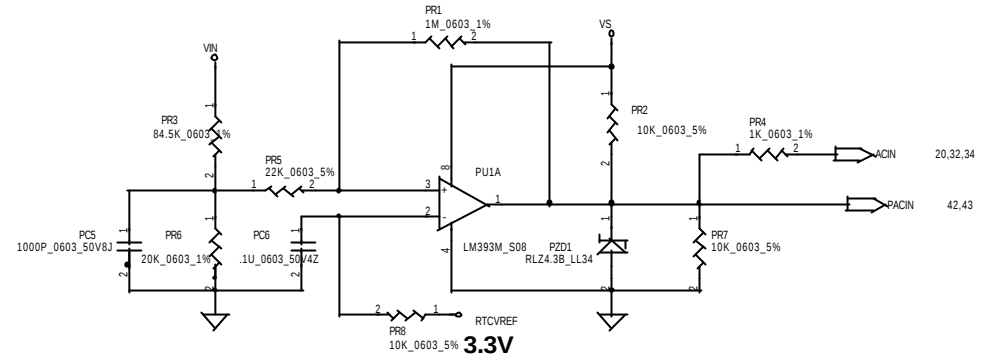
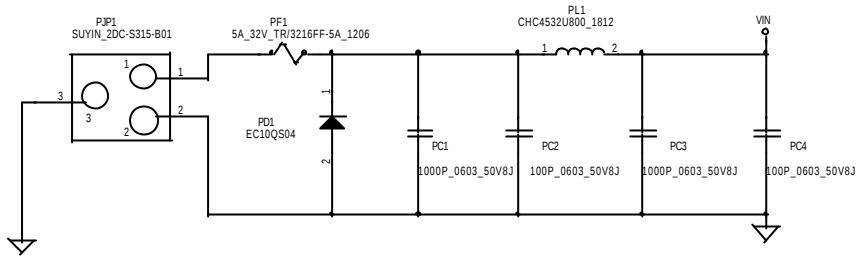
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Size	Document Number	Rev
Custom	401218	1A
Date:	2002/08/22	Sheet 36 of 44

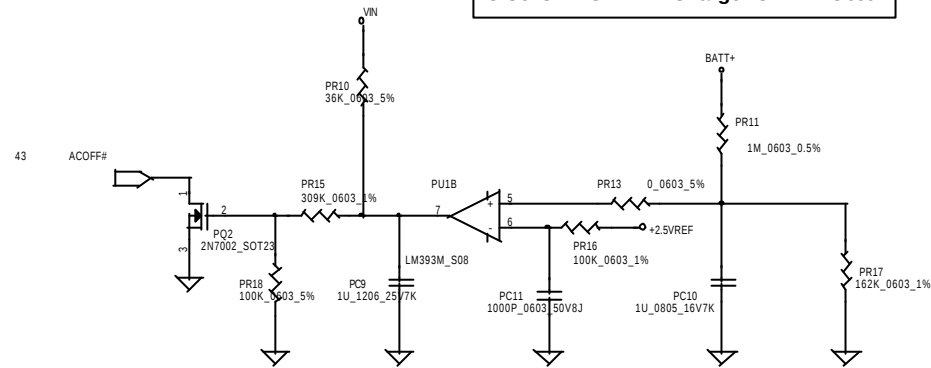
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Vin Detector

High 18.764 17.901 17.063
Low 17.745 16.903 16.038



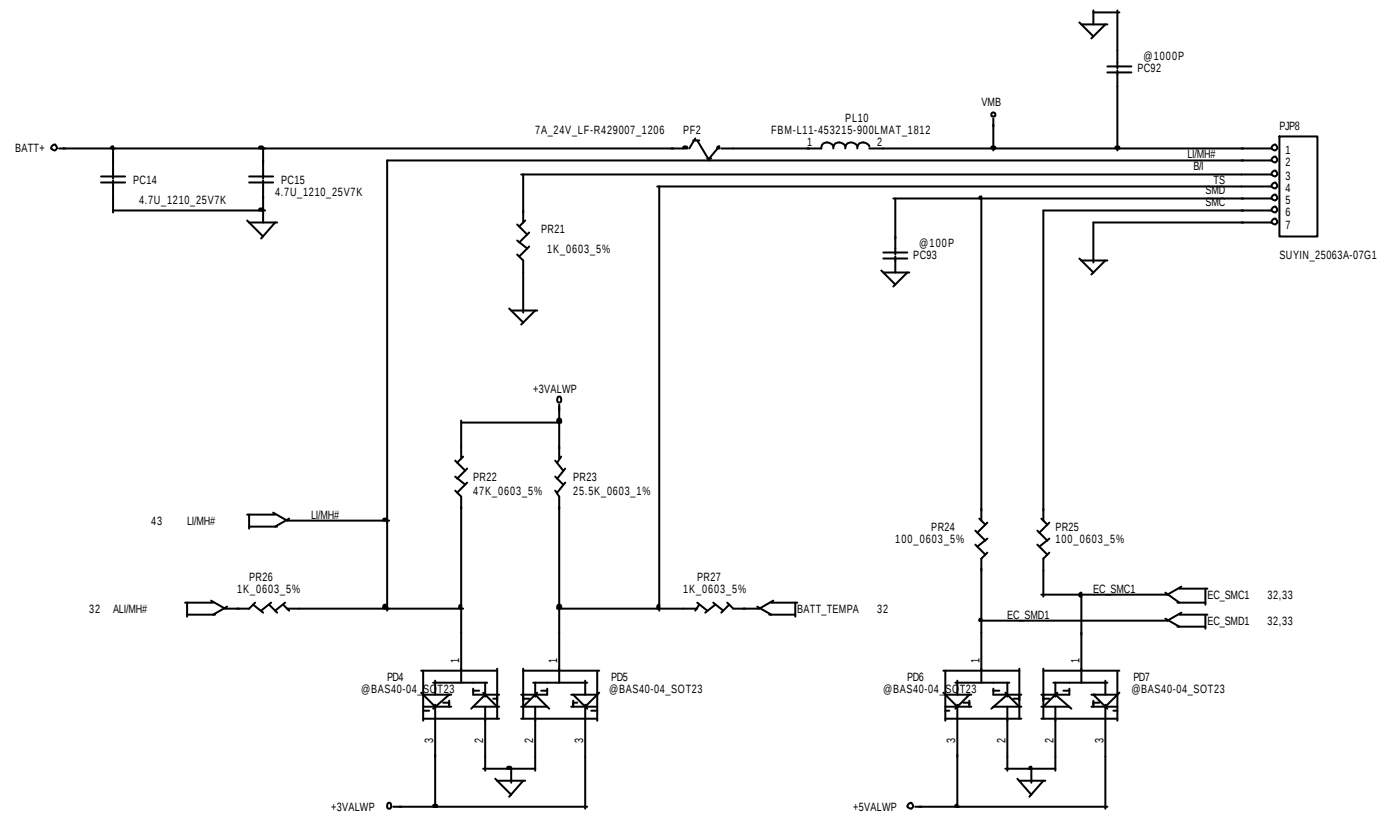
8 Cells LI-ION BAT Charger OVP : 18.059V



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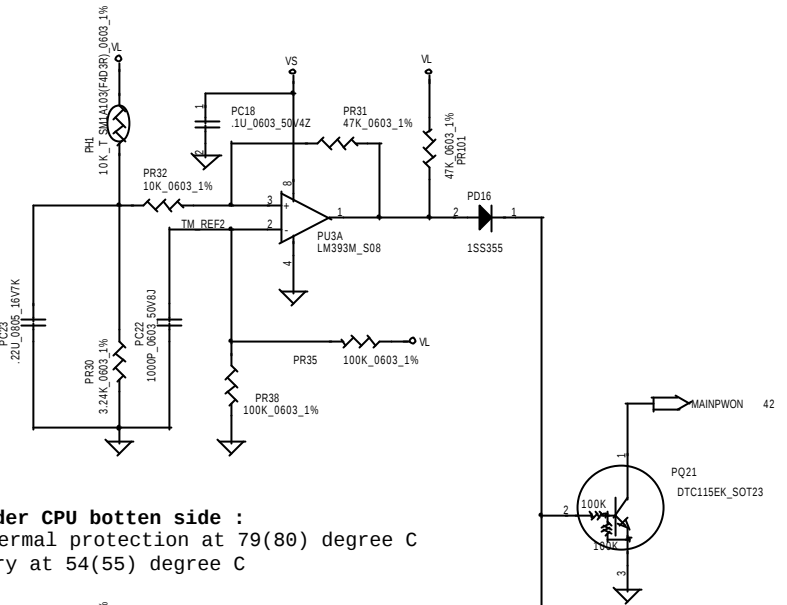
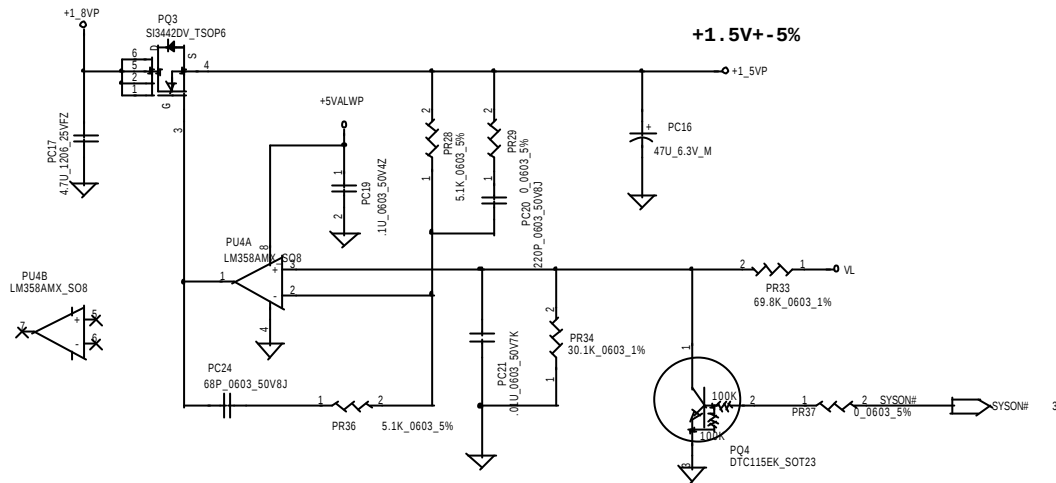
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Size	Document Number	Rev	
B	401218	1A	
Date	2002/10/22	Sheet	37 of 44



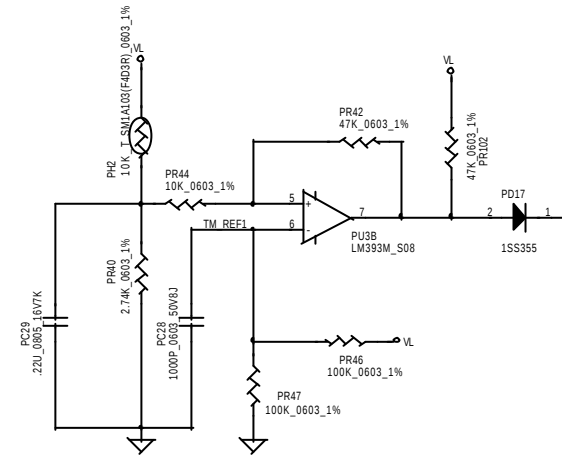
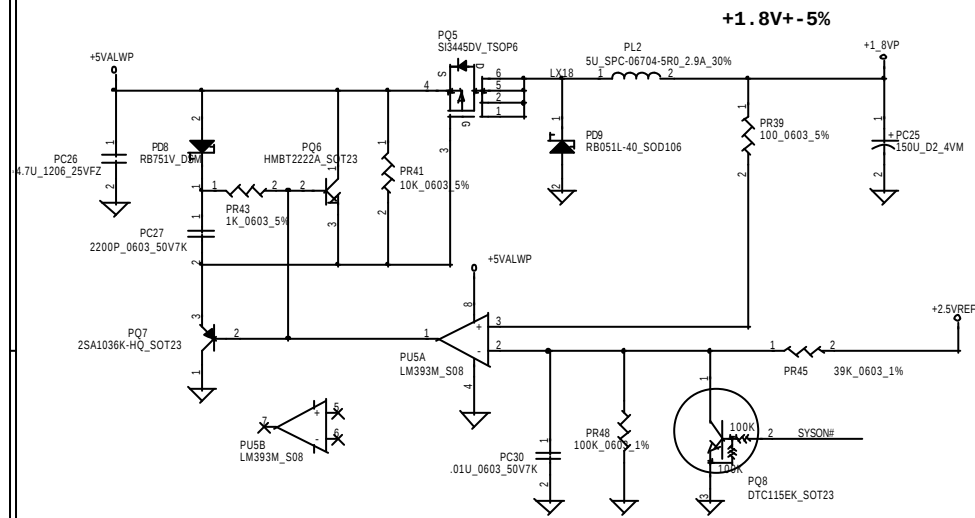
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File	SCHEMATIC, MIB LA-1421		
Size	Document Number	Rev	
B	401218	1A	
Date	2002/08/22	Sheet	38 of 44

PH2 near main Battery CONN :
 BAT. thermal protection at 73(74) degree C
 Recovery at 50(51) degree C

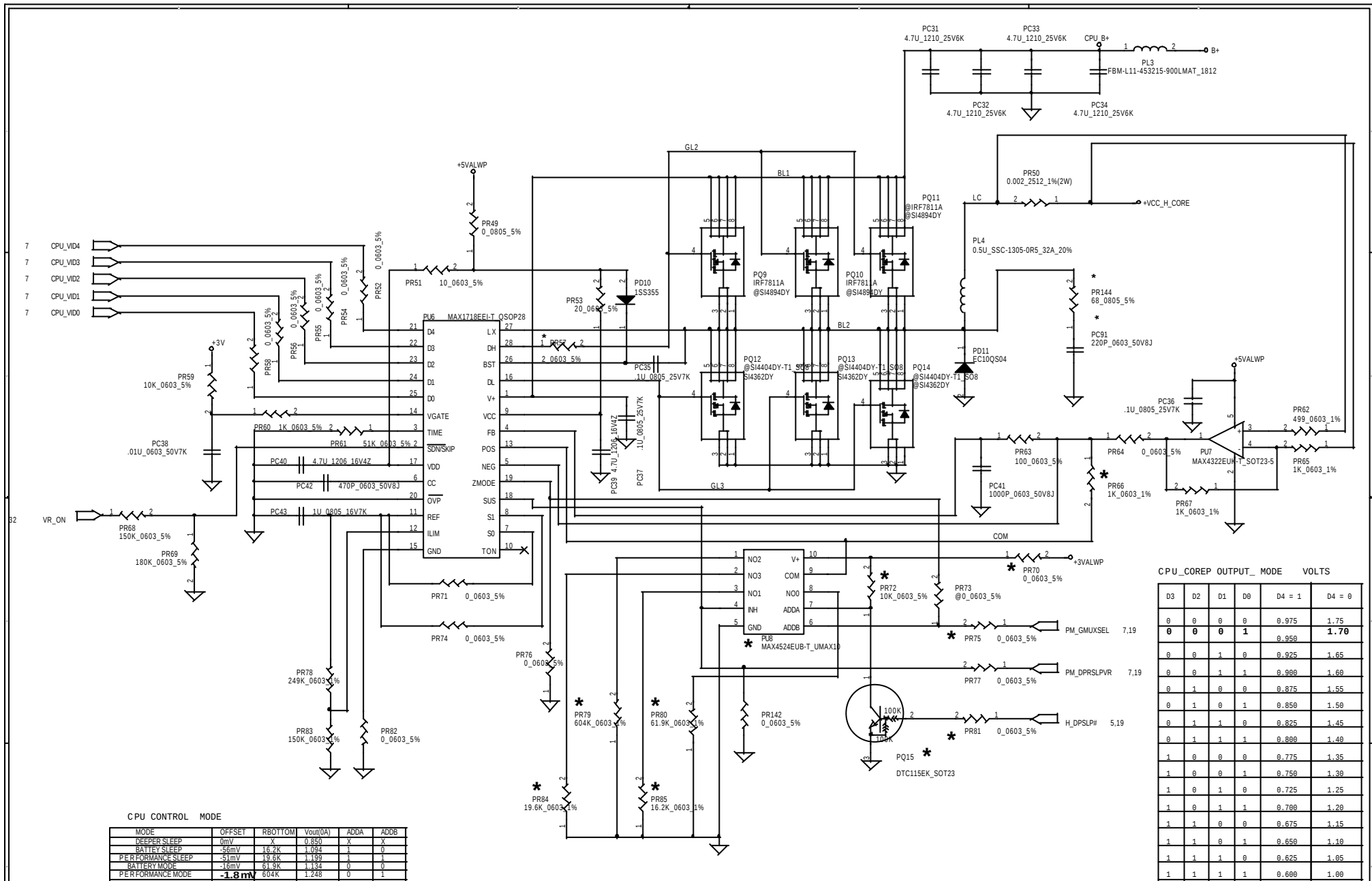


PH1 under CPU bottom side :
 CPU thermal protection at 79(80) degree C
 Recovery at 54(55) degree C



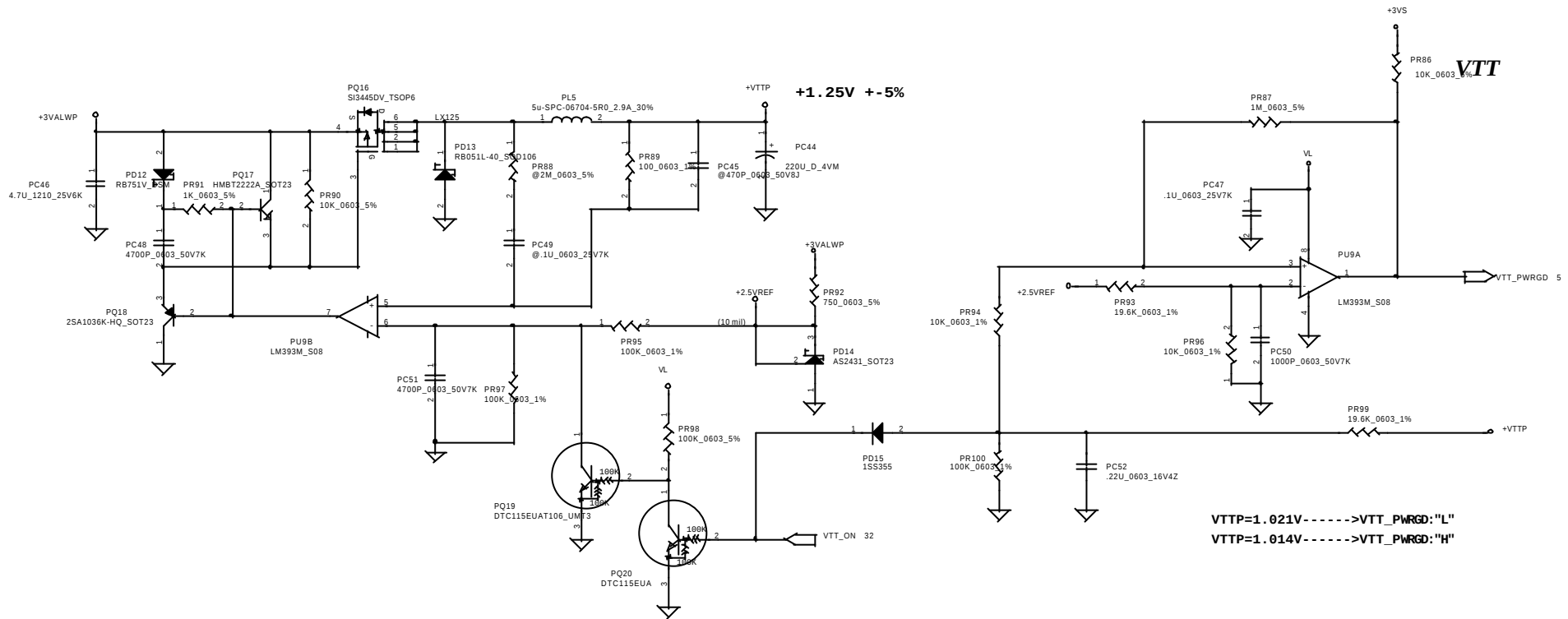
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File	SCHEMATIC, M/B LA-1421	
Doc	Document Number	Rev
B	401218	1A
Date	2002/11/22	Sheet 39 of 44



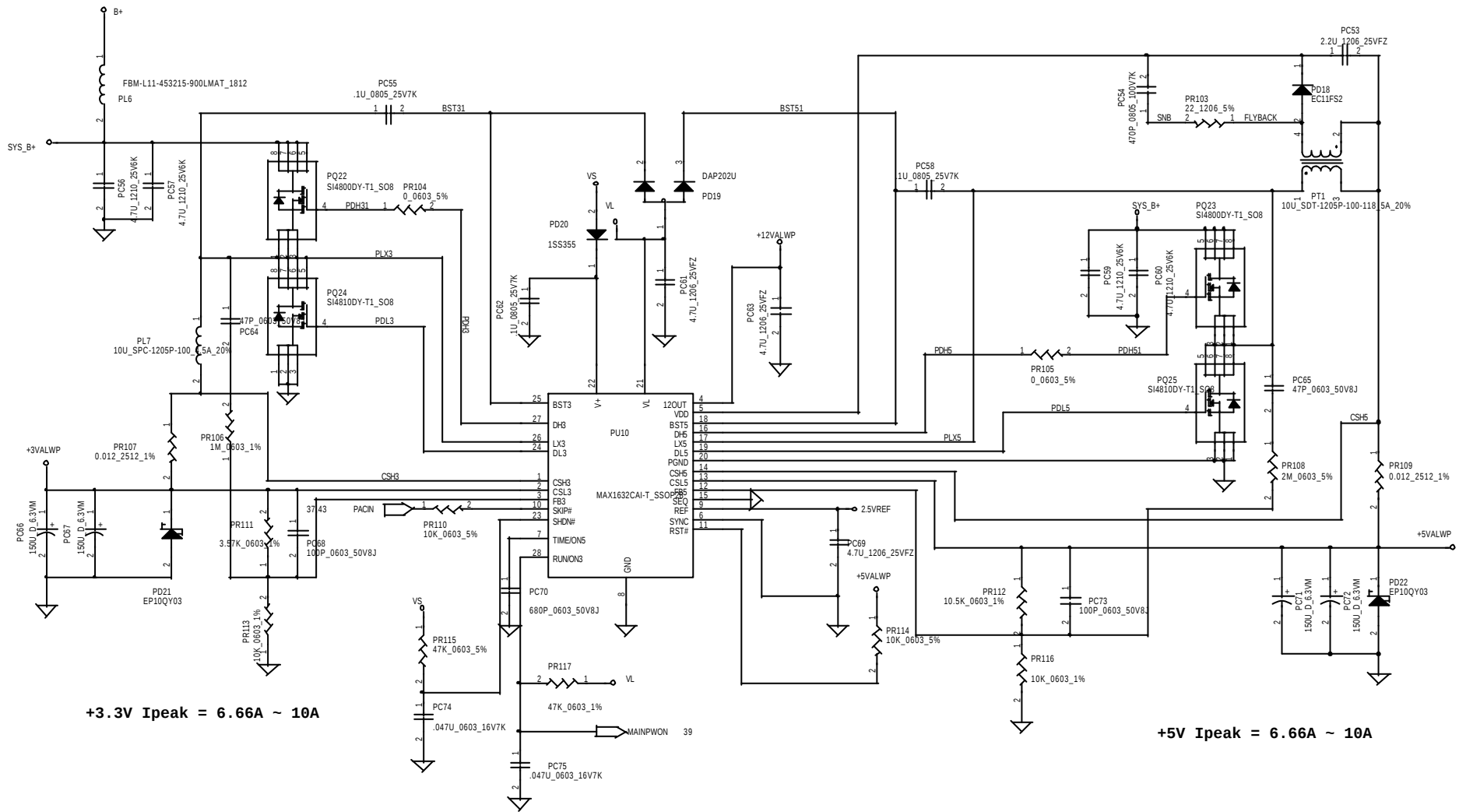
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SCHEMATIC, M/B LA-1421		
File	Document Number	Rev
B	401218	1A
Date: 2002/11/22	Sheet: 40	of 44



Compal Electronics, inc.			
Title	SCHEMATIC, M/BLA-1421		
Size	Document Number	Rev	
Custom	401218	1A	
Date	2002.08.22	Sheet	41 of 44

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File	SCHEMATIC, M/B LA-1421	
Size	Document Number	
B	401218	Rev 1A
Date	2002/08/22	Sheet 42 of 44

PIR

Change L35 and L8 size from 0603 to 0805

REV 0.2

Date	Page	Description
3/29	25	Del R305, R309, D33, D34
	27	Del R64, D9
	33	Q37 added @
	38	Batt SMBus change to EC_SMC1, EC_SMD1
	40	Added PR141
4/1	43	Added PR43, PQ34 and PQ32 change to 2N7002
	24	Del C1, C2, Added C688, C689
4/2	6	C568 added @, C532, C122 change to 220uf
		Del CF17, CF18, CF19

REV 0.3

Date	Page	Description
4/25	10	C629 C640 change footprint from CAP-A_B_1206_1210_TAN to CAP-D_E_TAN
	28	RP5 RP6 change footprint from 8P4R-0402-NEW to 8P4R
	27&33	Connect DRV0# between JP22 Pin4 and U31 Pin11
	23	Delete R60 Let +3VLAN connect with +3V directly.
	16	Add C690 1000P on net INVT_PWM
4/29	17	Add C691 10P and L47 on net DVOBC_CLKINT#
	28	Delete R17 R451 R9 R450, Change to L50 L51 L48 L49
	29	Delete L37 C466 L39 C465 L38 C464
	34	Add C692 C693 C694
4/30	34	Add CP11 C695 C696 C697
	16	Change L35 L8 size from 0603 to 0805
	36	Add C698 C699
5/5	33	Change Board ID from 000 to 001
	28	Change RP5 RP6 Size from 0804 to 1206
	16	Change R339 and R13 from 100hm to 00hm

REV 1.0

Date	Page	Description
5/30		Update revision code from 0.3 to 1.0 directly

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SCHEMATIC, MBLA-1421		
Size	Document Number	Rev
Custom	401218	1A
Date:	星期四, 八月 22, 2002	Sheet 44 of 44